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ABSTRACT

One of two reports on the 1985 Home Information Technology Study (HITS), a national survey conducted to provide insights into the role played by educational technologies in out-of-school learning, this volume provides current estimates of the availability and accessibility of information technologies and related program materials in American households, and examines how, by whom, and to what extent these household technologies/resources are used for informal learning. The first of five major sections in this report, the introduction provides background information on the study and a description of the survey methodology. Detailed analyses of the data are then presented in separate sections for: (1) the general household availability of technological equipment and program materials to persons in the four age groups; (2) the use of technology/educational material for nonschool learning by children and adults; and (3) attitudes toward various information resources/technologies for different types of learning, and how these attitudes differ among and between users and nonusers of these materials. The fifth section provides a summary of the major findings and conclusions drawn from the data analyses. Appended materials include copies of the HITS survey questionnaire (interview) items; a summary of the HITS study design and procedures; and a brief discussion of the precision of reported estimates and generalized standard errors. (BBM)

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Contractor Report

Use of Electronic Information Technologies For Non-School Learning in American Households

Report of Findings From the 1985 Home Information Technology Study (HITS)

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Use of Electronic Information Technologies For Non-School Learning in American Households

Report of Findings From the 1985 Home Information Technology Study (HITS)

Corporation for Public Broadcasting
Washington, D.C.

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CS 86-215

PREFACE

Since 1970, the Corporation for Public Broadcasting (CPB) and the Center for Statistics (formerly the National Center for Education Statistics) have co-sponsored a program of research into the educational uses of telecommunications and information technology or electronic media. Recognizing that the educational process is a lifelong process, involving learning in both formal and informal settings, the CPB/CS cooperative research program has involved national surveys of the availability and use of instructional technologies in public and private elementary, secondary, and postsecondary schools. The results of these studies have provided valuable insights into the role played by educational technologies in the nation's schools and classrooms. Such information is needed as a basis for effective planning, implementation, and evaluation of policies and programs designed to enhance educational achievement and to upgrade the instructional delivery system.

The current Home Information Technology Study (HITS) represents the first attempt to add a household-based component to the comprehensive information base which has been developed over the last decade and a half through the CPB/CS cooperative research program, and follows several years of planning and feasibility study. The underlying objectives for the study are only slightly different, conceptually, from the in-school study components, namely: to determine what people consider important enough to learn on their own, with an emphasis on what is involved in such "informal" learning and why particular learning aids (including but not limited to telecommunications technology) are chosen or preferred over others.

The findings of the Home Information Technology Study are reported in two separate documents, which differ in terms of their primary focus. The current report focuses on the nature and extent of availability and use of information technology for educational purposes in the household. A companion report, "Out-of-school Learning among Children, Adolescents, and Adults," focuses on the nature and extent of informal learning that occur and the processes and resources (including technology) involved in such learning.

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Our associates at Research Triangle Institute (RTI) of North Carolina, under the expert direction of Dr. Graham Burkheimer, were responsible for the sampling and survey operations aspects of the study. Others at RTI deserving special acknowledgment are Jan Whelan, who provided programming support for the data analyses, and Jeri Conklin who typed, proofed, and assembled the draft report.

TABLE OF CONTENTS

		Page
I.	Introduction	1
	A. General	1
	B. Overview of HITS Study Design	1
	C. Definitions of Learning	3
	D. How to Read the Tables in This Report	4
	E. Structure of this Report	5
II.	Household Availability of Information Technologies/ Resources	6
	A. General Availability of Equipment/Services	6
	B. Types of Available Computer Equipment and Software	7
III.	Use of Technology	9
	A. General Nature and Extent of Use	9
	B. Use of Information Technologies/Resources for Learning	10
IV.	Learner Attitudes and Perceptions	17
	A. Overall Learner Satisfaction	17
	B. Attitudes Toward Learning Resources	17
V.	Summary of Major Findings	20

Appendix A: HITS Interview Items (All Age Groups)
Appendix B: Summary of HITS Study Design and Survey Methodology
Appendix C: Reliability of the Estimates
Appendix D: Tables

LIST OF TABLES

Table Number	Title
1	Percentage of Persons with Various Information Technologies Available By Age Group
2	Percentage of Adults with Various Information Technologies Available By Family Income Level
3	Percentage of Young Children with Various Information Technologies Available By Age Group and Number of Parents in Household
4	Percentage Distribtuion of Brands of Computers in Households By Age Group
5	Percentage of Persons in Computer-Owning Households with Various Computer Peripherals Available By Age Group
6	Percentage of Persons in Computer-Owning Households with Various Educational Software Available By Age Group
7	Percentage Distribution of Hours Spent Using Computer By Age Group
8	Percentage Distribution of Hours Spent Using Computer By Age Group and Sex
9	Percentage of Persons Using the Personal/Home Computer for Various Purposes By Age Group
10	Percentage of Adults Reporting Extent of Actual Family Use of Personal/Home Computers Compared to Anticipated Use Prior to Purchasing Equipment
11	Percentage of 2-5 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning
12	Percentage of 6-11 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning
13	Percentage of 12-17 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning
14	Percentage of Adults Employing Various Information Technologies/ Resources in Their Most Important Learning Activity By Type of Learning
15	Percentage Distribution of Most Important Learning Activities Among 2-5 Year Olds By Type and Mix of Technology/Resources Used
16	Percentage Distribution of Most Important Learning Activities Among 6-11 Year Olds By Type and Mix of Technology/Resources Used
17	Percentage Distribution of Most Important Learning Activities Among 12-17 Year Olds By Type and Mix of Technology/Resources Used
18	Percentage Distribution of Most Important Learning Activities Among Adults By Type and Mix of Technology/Resources Used
19	Percentage of 2-5 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Learning Style Preferences
20	Percentage of 6-11 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Learning Style Preferences
21	Percentage of 12-17 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Learning Style Preferences

LIST OF TABLES (continued)

Table Number	Title
22	Percentage of Adults Employing Various Information Technologies/ Resources in Their Most Important Learning Activity By Learning Style Preferences
23	Percentage of Persons Who Were Aware of Specific Materials That Were or Could Have Been Helpful in Learning Activity By Age Group
24	Percentage of Learners Who Were Aware of Potentially Helpful Program Materials/Resources That Used Them in Their Most Important Learning By Age Group
25	Percentage of Persons Who Did Not Use Various Information Technologies/Resources in Their Most Important Learning That Indicated They Were Unaware of Any Potentially Helpful Program Material/ Resources By Age Group
26	Percentage of 2-5 Year Olds Involving Others In Most Important Learning Activity By Type of Learning and Use/Nonuse of Technology
27	Percentage of 6-11 Year Olds Involving Others In Most Important Learning Activity By Type of Learning and Use/Nonuse of Technology
28	Percentage of 12-17 Year Olds Involving Others In Most Important Learning Activity By Type of Learning and Use/Nonuse of Technology
29	Percentage of Adults Involving Others In Most Important Learning Activity By Type of Learning and Use/Nonuse of Technology
30	Percentage of Persons Reporting Various Levels of Satisfaction with Learning By Age Group and Use/Nonuse of Technology
31	Percentage of Persons Reporting Things They Would Change if They Were to Repeat Learning By Age of Learner and Use/Nonuse of Technology
32	Attitudes Toward Learning Resources By Type of Learning: 2-5 Year Olds
33	Attitudes Toward Learning Resources By Type of Learning: 6-11 Year Olds
34	Attitudes Toward Learning Resources By Type of Learning: 12-17 Year Olds
35	Attitudes Toward Learning Resources By Type of Learning: 18 Year Olds and Older
36	Attitudes Toward Learning Resources By Type and Mix of Technology Used: 2-5 Year Olds
37	Attitudes Toward Learning Resources By Type and Mix of Technology Used: 6-11 Year Olds
38	Attitudes Toward Learning Resources By Type and Mix of Technology Used: 12-17 Year Olds
39	Attitudes Toward Learning Resources By Type and Mix of Technology Used: 18 Year Olds and Older

I. INTRODUCTION

A. General

Rapidly diminishing costs of computer and telecommunications technologies have enabled manufacturers and distributors of these electronic media to target the American household in their marketing strategy. Consumers are barraged by advertisements extolling the benefits of owning a personal/home computer, a videocassette recorder, a satellite dish or other telecommunications products and services. These products and services must compete with each other and with older technologies (radios, stereos, motion picture projectors) for what in most cases is a limited household budget. Marketing campaigns have, therefore, attempted to meet the potential consumer's desires for both recreation and personal growth. With regard to the latter, much of the personal/home computer software currently being marketed is educational in substance. Similarly, substantial educational programming is available through videotape or aired directly over cable or regular television.

But the assumption that there is a substantial interest in home learning is as yet unverified. Even if such interest does exist, some questions remain; e.g., what topics are of most interest? to whom? and what role does technology play in such learning? This report is one of two which summarize the results of the 1985 Home Information Technology Study. This report focuses on information technology, its availability and use for educational purposes in the home, while the companion report[1] focuses on informal, or non-school, learning and the decisions and processes involved. More specifically, the major purposes of the current report are:

- To provide current estimates of the availability and accessibility of information technologies and related program materials in American households; and
- To examine how, by whom, and to what extent these household technologies/resources are used for informal learning.

B. Overview of HITS Study Design

The study was designed to collect data from (or about) household members in four age groups: 2-to-5-year-olds, 6-to-11-year-olds, 12-to-17-year-olds,

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[1] Riccobono, J.A. "Out-of-School Learning Among Children, Adolescents, and Adults," Corporation for Public Broadcasting and Center for Statistics, 1986.

and adults (18 years and older). A computer assisted telephone interview (CATI) system was employed and household identification was accomplished through the Mitofsky/Waksberg random digit dialing procedure.[2] The complete sampling procedure involved screening randomly selected telephone numbers to identify households, rostering household members with respect to age and sex to determine household composition, and selecting household members within rostered households according to predetermined selection rates for each of the four age groups. Targeted sample sizes for each age group were: 2,203 2-5 year olds, 1,102 6-11 year olds, 552 12-17 year olds, and 1,650 adults.[3] The determination of sample sizes was based on considerations of expected sampling error of estimates and resources available for conducting the study. The final sample is representative of approximately 13,400,000 2-5 year olds, 18,300,000 6-11 year olds, 22,900,000 12-17 year olds, and 164,000,000 adults.[4]

Four separate questionnaires (one for each age group) and a household screening form were designed for completion by telephone interview. Since these questionnaires represented major revisions of earlier field test instruments, they were subjected to limited pretesting, after which they were further modified to accommodate better their administration by telephone and to incorporate necessary survey control parameters. A copy of the items included in each interview is provided in Appendix A. Individual questions were directed to those respondents who would best be able to provide the requested information reliably. Thus, adult sample members were interviewed directly, but proxy interviews with an adult family member (i.e., the parent or guardian most involved in the child's education) were conducted for all sample members under 18 years of age. It was felt that any limitations of the ability of proxies to report for their children were outweighed by the potential data quality and telephone interviewing problems involved with interviewing children directly.

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[2] See Waksberg, J. 1978. Sampling Methods for Random Digit Dialing. Journal of American Statistical Association, Vol. 73, pp. 40-46.

[3] Because the selection procedure used called for sampling of households with replacement, some households (and the associated respondents within household) were expected to be selected more than once. Therefore, the targeted number of respondents given includes such replication.

[4] Excluded from the study universe were children under 2 years of age, persons in households without telephones, and persons in households with non-English speaking adults.

All telephone interviewers received extensive training over a two-day period both in general CATI operations and in the specific administration of each HITS interview question. Data were collected over a period of approximately four and one-half months, from 11 February to 22 June 1985. Telephone interviewing was conducted as a 7-day-a-week operation, with two operational interviewer shifts. Up to 18 interviewers were employed per shift and two supervisors were on hand to provide assistance and quality control, including "listen-in" monitoring of actual interviews performed by each interviewer.

Success rates for rostering identified households approached 90 percent and, within rostered households, interviews were obtained from over 75 percent of sampled adults and for over 90 percent of children sampled within the other three age groups. These response rates exceeded expectations and, consequently, the final number of interviews exceeded the target number in all four age groups.

A sampling weight was assigned to each member in the original sample to account for unequal selection probabilities; these weights were further adjusted for nonresponse in an attempt to reduce, to the extent possible, the resulting potential bias. Adjusted weights were then used to estimate results for the total populations of 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults in the nation. Further detail on the HITS design and methodology appears in Appendix B.

C. Definitions of Learning

This report focuses on the household availability and use of various information technologies/resources, especially for purposes of informal or non-school learning. The problems involved in surveying people with regard to their informal learning are obvious. The concept of "learning" is highly abstract and can have different connotations for different people. Learning occurs continuously--from media, people, and experiences. Informal learning may be structured or unstructured, an isolated event or part of a long-term learning project. It may be actively sought by the learner or happen serendipitously. During a previous field test, efforts to define "learning activity" for the respondent proved fruitless, as different individuals interpreted the definition in different ways. Therefore, for purposes of this study, it was decided that learning activity be defined simply as anything identified by the respondent, after prompting from the interviewer, as a learning "experience."

With regard to this inventorying of learning activities, respondents were prompted as to specific kinds of learning within two broadly defined categories:

(1) Practical/Recreational learning--learning how to do something and applying it (e.g., sports, crafts, music, dance); and,

(2) Intellectual learning--acquiring skills and knowledge for their own sake (e.g., science, mathematics, foreign language).

Finally, respondents were asked to choose (from among those learning activities that they indicated having engaged in) their most important learning activity. This activity was defined as the activity on which the learner had spent the most time, or the one that the learner (or proxy respondent) thought had produced the biggest change in the learner's life. The reader should keep in mind this definition of "most important learning activity," as much of the interview and, consequently, of the results presented in this report pertain to the learning activities selected as most important by the respondents.

D. How to Read the Tables in This Report

Most tables in this report will contain several column headings. The cell entries in the tables typically are weighted percentages (rounded to the nearest whole percent) or means and are based on the group indicated in the column heading. Because these estimates are based on a sample of 2-5 year olds, 6-11 year olds, 12-17 year olds, or adults, they may vary somewhat from the figures that would have been obtained if a complete census survey had been undertaken using the same instruments and procedures. This sampling or chance variation is measured by the standard error. For the total population, standard errors of the tabled HITS percentage estimates are no greater than $\pm$ 2 percent, 3 percent, 4 percent, and 3 percent, respectively, for 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults. Because standard errors for subgroup estimates are likely to be somewhat larger, the reader should refer to Appendix C for a discussion of the reliability of reported estimates and their associated standard errors. In most cases, the last row of each table will include the actual "number of sample cases" on which the weighted estimates are based; however, some tables include these numbers in parentheses directly beneath the percentage estimates. Numbers of sample cases will, of course, vary from table to table because of variation in individual item nonresponse.

E. Structure of this Report

This report is organized into five major sections, including this introduction: Section II provides a description of the general household availability of technological equipment and program materials to persons in various age groups; Section III deals with use of technology/educational material for non-school learning by children and adults; Section IV examines attitudes toward various information resources/technologies for different types of learning and how these attitudes differ among and between users and nonusers of these materials; and, Section V provides a summary of the major findings and conclusions drawn from these analyses of the HITS data.

Three technical appendixes are also provided: Appendix A includes copies of the HITS survey questionnaire (interview) items; Appendix B supplies a summary of the HITS study design and procedures; and Appendix C offers a brief discussion of the precision of reported estimates and generalized standard errors.

II. HOUSEHOLD AVAILABILITY OF INFORMATION TECHNOLOGIES/RESOURCES

Use (and usefulness) of technology for learning, or for any purpose, cannot be adequately examined or understood outside the context of availability, since the former is contingent upon the latter. Therefore, while the primary focus of this report is on use and perceived usefulness of technologies for informal learning, this section describes the extent to which these technologies/resources were available to persons in American households during the spring of 1985. Results are reported separately, for each of four age groups: adults (18 years old and older), 12-17 year olds, 6-11 year olds, and 2-5 year olds. The reader should keep in mind that the presence of a particular age group in a household does not necessarily preclude the presence of other age groups in that household; i.e., households with adults may or may not also include children in one or more of the other three age groups, and households with 2-5 year olds would certainly also include at least one adult.

A. General Availability of Equipment/Services

Four types of educational media were of interest in this study: print, audio, video, and computers. Print, in some form, is known to be universally available and, consequently, will not be dealt with in this section. As Table 1 shows, at least one television set is now included among standard household furnishings in virtually all American homes, with almost everyone having access to a television. (Indeed, it has been reported elsewhere[5] that 57 percent of U.S. homes have two or more television sets.) About half (48 percent) of all adults in households indicated receiving basic or pay cable television service, while it is estimated that almost three-fourths of U.S. households had access to such services in 1985. It appears that household penetration rates for videocassette recorders (VCRs) continue to meet or exceed industry predictions. By mid-1985, about 29 percent of all adults were in households that had a VCR, with slightly higher proportions (about one-third) of adults with children in each age group indicating possession of such

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[5] PBS - A.C. Nielsen, for period October 1984 through March 1985.

equipment. As with television sets, radio availability is known to be widespread among American households and, therefore, was not assessed in this study.[6] With regard to other forms of audio technology, Table 1 shows that both record players/stereos and audiocassette players also were available to more than four out of five adult household members and to over 90 percent of pre-teen or teenage children. In contrast to VCRs, personal/home computer sales have experienced some recent decline in growth rate. Even so, an estimated 13 percent of all adults in U.S. households indicated availability of a personal/home computer by mid-year 1985 and about one out of five pre-teen or teenage children had access to this new technology within their homes. It does appear, however, that the contention by some industry analysts that many households have turned away from personal/home computer ownership and back towards VCRs and television has been supported by these findings.

Table 2 shows the expected relationship between technology availability and family income level. With the exception of television sets, adults in higher income families were proportionately more likely to have each of the technologies listed than were adults in lower family income categories. This relationship is most dramatic with respect to VCRs and personal/home computers. While about half of the highest income adults reported ownership of a VCR, less than 20 percent of adult's with family incomes under $20,000 per year indicated having such equipment. Personal computers are indeed rare in households with family incomes of less than $10,000 (3 percent of adults in such households had computers), whereas about one-quarter of the adults in the wealthiest households indicated ownership of this technology.

Similar differences in technology availability were observed between single- and two-parent households. As shown in Table 3, both VCRs and personal/home computers were substantially more likely to be available to children in two-parent than to those in single-parent households, which might be expected given the additional income-producing capability of two-parent households.

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[6] CPB "Research Notes," December 1985, reported availability of radios in 99 percent of U.S. households.

B. Types of Available Computer Equipment and Software

Among computer-owning households, the most frequently named brand of computer by adults was Commodore (33 percent), followed by Apple (18 percent) and Texas Instruments (16 percent). The percentages vary somewhat for children in each age group (Table 4); but for all age groups Commodore was the most common brand of computers available, followed by Apple or Texas Instruments. Interestingly, Atari computers were substantially more likely to be available for children than for adults.

About three out of every four (76 percent) adults in computer-owning households indicated the availability of one or more options or peripherals in addition to the basic unit, with slightly lower percentages of parents/guardians of children reporting peripherals available (Table 5). Whether the peripherals listed in Table 5 were integrated into the unit or separate components was not ascertained. As can be seen, disk drives were the most common peripherals available, noted by two-thirds of adults in computer-owning households, followed by printers (55 percent) and monitors (48 percent). While not shown in Table 5, about 58 percent of adults indicated having at least two peripherals; and the most frequent configuration (noted by 37 percent of adults) included a disk drive(s), monitor, and printer.

In the case of personal computers, of course, hardware availability is insufficient for most applications. Table 6 shows the availability of various kinds of educational software among persons in computer-owning households. While "computer basics" was the most frequently named software available (noted by about two-thirds of all adults), other types of educational software (e.g., math, spelling) were available to surprisingly large numbers, especially among young children. The substantially higher availability of mathematics software to 6-11 year olds (72 percent) in comparison to 12-17 year olds (51 percent) may reflect the level of sophistication of the software currently being marketed and suggest a need for more or better software for higher levels of mathematics. In any event, only about one out of five (22 percent) of adults in computer-owning households indicated not having at least one type of educational software, with even fewer parents/guardians of children reporting the absence of such software. Indeed, most persons reported having several types of educational software, with the median number of different kinds being three for each age group.

III. USE OF TECHNOLOGY

This section presents estimates of use of available technologies by household members. Estimates of use are presented for each of the four study age groups and, within age group, by type of learning and by learning style preference. In addition, the kinds of learning reported by each age group are examined in relation to the type and mix of technologies/resources employed. Finally, use and non-use of technologies in learning are examined with respect to prior awareness of useful program materials; and technology users and non-users are compared with respect to other support activities involved in their learning efforts.

A. General Nature and Extent of Use

While the presence of a technology in the home may imply use of that technology, it does not suggest who the users are, the amount of use, or the purposes for which the technology is used. Clearly, the primary purpose of television, radio, and other audio-video technologies in the household is for entertainment, although (as we shall see later in this section) they may also be used for educational purposes. Unlike these technologies, personal/home computers may be used for a variety of purposes in addition to entertainment and education. Tables 7 through 9, respectively, show the extent of computer use by various household members and the percentages of children and adults using household computers for various purposes.

As shown in Table 7, about 40 percent of the adults and preschool children in households with computers available did not use the computer at all in a typical week and about one-third of pre-teen and teenage children typically used it for less than one hour per week. In fact, only about one out of five school-age children and adults in computer-owning households used the computer in excess of five hours during the typical week. Clearcut sex differences were found with regard to computer use. Within each age group, males were substantially more likely to use the computer and to use it for more hours than were females (Table 8).

As expected, children who used computers were much more likely to use them for entertainment (about 3 out of 4 children) than were adults (38 percent), although about two-thirds or more of each group also reported using them to

learn about computers (Table 9). Adults and older children were more likely than younger children to use the computer for original programming or word processing, while about half of the adult users also indicated use for job or business related tasks and for household recordkeeping.

Adults in computer-owning households were asked if they or their family actually "use the computer more, less, or about the same as you thought you would at the time you bought it." The estimates derived from this question are presented in Table 10 and indicate an apparent dissatisfaction by many in terms of actual compared to anticipated use for a variety of purposes. For example, more than half of the computer-owning families felt at the time of purchase that they would use the computer more than they actually do for personal/family finances, word processing, and games or entertainment. The somewhat lower, albeit still substantial, percentage of persons indicating less than anticipated use of the computer for educational purposes may represent less disappointment regarding this application, but it may also simply reflect lower expectations on the part of computer owners with regard to the usefulness of this technology for educational purposes.

B. Use of Information Technologies/Resources for Learning

Respondents in each age group were asked to indicate the household resources, other than people, that they used to help them in their "most important (non-school) learning activity" of the past year. Estimates of percentages of persons using each of the various resources, given their availability, are presented separately for each age group in Tables 11 through 14.

Although the types of learning activities selected as most important varied widely both within and across age groups, printed material (i.e., books and/or magazines) was the most frequently noted instructional resource for all age groups, with about four out of five learners in each age group having used such material. Television programs were substantially more likely to be used by 2-5 year olds (76 percent) and 6-11 year olds (66 percent) than by 12-17 year olds (54 percent) or adults (41 percent), which is not surprising considering the nature of most educational programming aired over television. Videocassettes, the other primary video resource, were also more likely to be used by children (about one out of four) than by adults (about 17 percent) in their learning. The use of phonograph records for instruction was largely restricted to children, with almost half (48 percent) of the 2-5 year olds

using records compared to about 12 percent of the adults. Audiocassettes were also more likely to be used for learning by young children (26 percent of 2-5 year olds, 19 percent of 6-11 year olds) than by teenage children (13 percent) or adults (15 percent). On the other hand, radio programs were more frequently cited by adults (20 percent) and teenagers (18 percent) than by 6-11 year olds (14 percent) or 2-5 year old children (10 percent). With regard to computers, when available, they were more likely to be used in the learning activities of children (about 40 percent of each age group) than in those of adults (26 percent).

This discussion should not blur the fact that substantial numbers of learners within each age group made no use of any technology in their most important learning. Use of technology was inversely related to age, with the percentage of persons indicating no use of technology in their learning being 15 percent of 2-5 year olds, 22 percent of 6-11 year olds, 32 percent of 12-17 year olds, and 43 percent of adults. When a particular technology was used it was most often used in conjunction with other technologies and/or printed material. This was especially true for young children, with almost half of the 2-5 year olds and nearly one-third of the 6-11 year olds using video and audio technologies as well as printed matter in their learning activities. However, about one in five teenagers and adults also employed this combination of resources in their learning activities.

Thus far the discussion has focused on use of household technologies/resources regardless of the nature of the most important learning activity involved. Since each of the technologies or learning resources under investigation cannot be considered equally useful for all of the learning activities reported by the respondents, a more informative picture of technology/resource usage may be obtained by restricting the examination to more similar types of learning activity within age grouping. Therefore, the learning activity selected by each respondent was categorized as either practical/recreational or intellectual; and estimates of use of each of the technologies/resources were computed separately for each type of learning.[7] These estimates are also presented separately for 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults in Tables 11 through 14, respectively.

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[7] Unfortunately, while it is desirable to examine technology/resource usage within even more homogeneous categories of learning, further categorization was prohibited by limitations in the sample size.

While books/magazines are used by the majority of learners, regardless of type of learning or age of learner, they are an especially popular resource for intellectual types of learning. Roughly 9 out of 10 persons in each age group who engaged in intellectual learning activities used books and/or magazines to assist them in such learning. The findings are similar with regard to records and audiocassettes. Although both of these audio technologies were used by considerably smaller percentages of learners in all age groups, each group found substantially higher usage for intellectual than for practical/recreational learning activities. Radio program usage did not differ by type of learning activity for any of the three children's age groups; however, the percentage of adults using radio programs in intellectual learning activities was more than twice the percentage using such programs for practical/recreational learning. TV programs also were used rather consistently in both types of learning by all children, with slightly higher usage for intellectual learning; but the percentage of adults using TV programs was significantly higher for intellectual learning than for practical/recreational learning. Videocassette usage for each type of learning was inconsistent across age groups, with greater proportional use for practical/recreational learning among 2-5 year olds but for intellectual learning among adults. Finally, with the exception of 2-5 year olds (where no differences by learning type were observed), computers were almost three times as likely to have been used for intellectual learning activities as for practical/recreational learning.

While the distribution of technology, or resource mix, employed in learning differs over age group, so does the distribution of knowledge and skills being learned. Unfortunately, as noted above, the desire to examine resource utilization within more homogeneous types of learning than is provided by the practical/recreational and intellectual dichotomy was precluded by the diversity of learning activities selected as "most important" by respondents and by initial constraints on sample size for each age group. Nonetheless, additional insight regarding use of technology for learning may be obtained by looking at the actual learning activities from a somewhat different perspective. Tables 15 through 18 present (for each age group) the percentage distribution of most important learning activities reported by the total population as well as by persons employing different configurations of technologies/resources in such learning. However, since the number and kind

of resource configuration that could be examined was also limited by respondent sample size, examination of similar resource mixes across age groups was not always possible.

Examination of Tables 15 through 18 should focus on percentage distribution "patterns" in relation to the total population, rather than on actual individual percentages, since the actual size of the percentage within each resource group is constrained by the number of persons in the total population who chose a particular learning activity as most important. For example, while Table 15 shows that parents of 2-5 year olds generally were substantially more likely to choose intellectual activities (72 percent) than practical/recreational activities (28 percent) as their child's most important learning, persons who used "no print or technology" in their most important learning were more likely to have chosen practical/recreational skills. Furthermore, examination of the complete distribution of learning activities for this group shows that this difference can be attributed almost exclusively to sports, household chores and reading. In other words, learning of sports/motor skills,and household chores by 2-5 year olds does not appear to require or even typically involve the use of books/magazines or technology; whereas, seldom is learning to read attempted or accomplished without use of such resources. This does not imply that technology was not used or would not be useful in learning sports/motor skills, however; in fact, 16 percent of those using one or more "electronic media only" (i.e., no print) used these media in learning such skills.

The distribution of learning activities among 2-5 year olds who used "electronic media only" is quite similar to that of the "no print or technology" group, with one notable exception: Most of those who learned music did so by using electronic media only.

The other categories of resource mix--all of which involve use of printed matter--are very much like the total population in terms of their choice of practical/recreational and intellectual learning, with more of the latter and less of the former. "Print only" users were the most likely to have chosen art, whereas religion was the most frequently named subject among "print and audio" users. While reading was obviously learned by persons using a variety of resource/technology mixes, surprisingly high numbers of parents of 2-5 year olds employed all of these resources (print, audio, video, and computers) in combination in their children's learning.

Inspection of Tables 16 through 18 reveals that, to the extent that the technology/resource mixes are comparable, the patterns of utilization are fairly consistent across all age groups.

Aside from the type of learning being pursued, another factor which may influence the choice of instructional materials/resources is learning style preference. Tables 19 through 22 show the extent of use of the various technologies/resources in the most important learning activities of 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults, respectively, by reported learning style preference. The reader should examine these tables with caution as a number of the estimates presented are based on a relatively few number of sample cases and, therefore, lack the precision and stability of most other estimates in this report. (See Appendix C for error estimates.) Also, in the case of pre-teen and teenage children, it should be kept in mind that these results are based on "perceptions" of parents or guardians regarding the learning style preferences of their children.

In general, inspection of Tables 19 through 22 shows few significant differences in resource usage according to the learning style preferences considered. Computers were somewhat more likely to be used in learning by persons (of all ages) who prefer individual to group learning and by those who prefer to set their own learning pace rather than having the pace set for them. Teenagers and adults with individualistic learning styles were somewhat more likely than their counterparts with preferences for group learning to use books and/or magazines, although substantial percentages (i.e., 70 percent or more) of persons reporting both learning style preferences indicated using such print resources. Not surprisingly, persons in each age group who reported a preference for obtaining information from books rather than people were also substantially more likely to have used books/magazines in their most important learning activity. With regard to the use of video and audio resource materials, no consistent significant differences emerged between the various learning style preferences examined.

The decision of whether or not to use a particular resource/technology in learning is, of course, constrained by the availability of that resource; but it also will depend on the learner's awareness of program material perceived to be helpful in his or her learning. Table 23 shows that more than four out of five adults and parents of preschool age children, and about 9 out of 10 pre-teens and teenage children, were aware of books and/or magazines that

could have been helpful in their most important learning activities. Awareness of helpful video program material was directly related to the age of the learner, with 86 percent of the parents of preschoolers indicating such awareness compared to 57 percent of adult learners. Awareness of helpful audio materials was substantially lower, although such awareness was indicated for about half of the pre-teens and two-thirds of the preschool-age children. Reported awareness of helpful computer games/programs (among persons in computer-owning households) was also lowest for adults (36 percent) and highest for preschool-age children (58 percent).

It is, perhaps, more interesting and informative to look at awareness in relation to use. Table 24 shows that the great majority (70 percent or more) of persons in each age group who were aware of print, video, audio, or computer material that could have been helpful in their most important learning activity actually used such material in that learning. On the other hand, most of those who did not use a particular technology/resource in their most important learning activity reported that they were unaware of program materials that could have been helpful in that learning (Table 25). For example, almost three-fourths (72 percent) of the adults who did not use printed material in their learning activity indicated that they were not aware of any books/magazines that could have been helpful; the corresponding percentages for teenagers, pre-teens, and preschool children are 76 percent, 78 percent, and 71 percent, respectively. Similar findings were observed with respect to video, audio, and computers.

Finally, respondents were grouped into technology users and nonusers and compared with respect to their use of or involvement with other resources, especially people, in their most important learning activity. The results of these analyses are presented in Tables 26 through 29 for 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults, respectively. Once again, the findings are somewhat obscured by the broad classificationsof both learning type and resource use permitted by limitations in respondent sample size.

Not too surprisingly, 2-5 year olds and 6-11 year olds were more likely to receive help from other household members than from people outside the household. While this is true regardless of type of learning involved, or the nature of the non-human resources employed in learning, proportionately more of the children employing some form or combination of technology in practical/recreational learning had received such assistance from household

members. Although substantial numbers of both teenage children and adults also received help from other household members, they were more likely to have received such assistance from persons outside the household, especially if their learning activity involved the use of technology. Children and adults were more likely to have learned along with other friends or household members when technology was involved in the process than when the learning activity did not involve technology. Intellectual learning was far more likely than was practical/recreational learning to have involved visiting the library, regardless of the learner's age; and, for both practical/recreational and intellectual learning, technology users were proportionately more likely to have visited a library than were nonusers of technology.

IV. LEARNER ATTITUDES AND PERCEPTIONS

Because attitudes and perceptions, whether or not they are based in fact, can certainly influence the decision to use or not to use instructional technologies/resource materials, learner attitudes and opinions regarding the actual or potential usefulness of various types of resources were assessed and are presented in this section.

A. Overall Learner Satisfaction

Over 95 percent of the learners within each age group indicated that they were very or somewhat satisfied with the amount that they had learned (Table 30). In fact, most people in each age group indicated that they were "very satisfied" with their learning. Interestingly, adults who made no use of technology in their learning were proportionately more likely to have been very satisfied than were adults who used some form of technology. However, such differences between technology users and nonusers were not found for children.

Although these findings indicate general satisfaction on the part of almost all learners, they should not suggest that these learners feel that they followed the ideal learning strategy and would do nothing differently if they were to do it over again. Indeed, most people indicated that they would do some things differently (Table 31). For example, more than 60 percent of those in each age group indicated that they would "try to get better feedback about progress along the way"; and a similar proportion (about two-thirds) of parents/guardians of learners over six years old indicated that "more practice" would have been desirable. Further, one-third or more of each age group indicated that they would "try to get more information before starting" and "try not to learn too much too fast," with proportionately more older children and adults having felt this way.

B. Attitudes Toward Learning Resources

Respondents, regardless of what resources they used or did not use in their most important learning activities, were asked to rate each type of resource with regard to its actual (if used) or perceived (if not used) helpfulness in learning such skills or knowledges. The results indicate that while almost everyone was satisfied with the amount of learning that they had

accomplished, their attitudes regarding the utility or potential utility of available resource materials are not nearly so positive. However, the reader should keep in mind that, in the case of children, it is the attitudes of parents regarding the utility of these resources for their children's learning that was assessed.

Tables 32 through 35 show the attitudes toward each learning resource, overall and with respect to practical/recreational and intellectual types of learning, for 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults, respectively. As can be seen, books/magazines (which were the most frequently used type of resource) were the most favorably rated learning resource by each age group. While such material was proportionately more likely to be perceived as "very helpful" for intellectual learning, regardless of age group, it was also rated as potentially being at least "somewhat helpful" by 80 percent or more of those engaged in practical/recreational learning. Television programs also received generally positive ratings with respect to their actual or potential utility for both types of learning, although attitudes toward television were most favorable for learning among 2-5 year olds and least favorable for adult learning. Within each age group, television was seen as equally helpful for both practical/recreational and intellectual kinds of learning.

Videocassettes, records, radio programs, audiocassettes, and computer games or programs were perceived as "not helpful" for more than half of all learners, regardless of age (except for records in the case of 2-5 year olds, where about one-third of the parents perceived such material as not helpful). Radio programs were considered the least potentially helpful of these resources, especially for learning by pre-teen and preschool-age children. Radio programs were most likely to have perceived utility for adult intellectual learning, although more than half of the adults who engaged in such learning rated such programs as not helpful. Records had somewhat more perceived utility for intellectual learning for 6-11 year olds, as did videocassettes for practical/recreational learning for 12-17 year olds. For all age groups, computers were proportionately more likely to be seen as helpful for intellectual learning than for practical/recreational learning.

Attitudes associated with persons employing various combinations of resources in their most important learning activities were also examined, both within and across age groups. Unfortunately, comparisons across age groups

were not always possible, since (as noted earlier) limitations in respondents' sample size prohibited examination of identical user groupings for all ages. Nonetheless, Tables 36 through 39 show rather consistently across age groups a positive relationship between use and perceived helpfulness of a particular resource. That is, within each age group, proportionately more persons who had actually used a particular type of resource in their most important learning activity rated that resource as "somewhat" or "very helpful" for such learning than did those who had not used that type of resource. Video-cassettes and radio programs are exceptions to this general finding in that, regardless of user group, these technologies were perceived as not helpful by substantial numbers of learners in each age group.

The observed differences in perceived utility of learning resources among users and nonusers of those resources were not unexpected. Perhaps more interesting, however, are comparisons of the helpfulness ratings assigned to resources by groups who used each of the resources in question. Such comparisons provide a somewhat clearer picture of the relative utility of the learning resources as perceived by the user. For example, learners who used print in combination with one or more technologies were, in every case, proportionately more likely to have felt that books/magazines were very helpful in their learning than they were to have felt that the other resource(s) employed were very helpful. Parents of 2-5 year olds who used audio, video, and computers in their children's learning were more likely to perceive computers as very helpful than either audio or video resources. No clearcut differences in the perceived utility of audio and video resources among users of both technologies were observed for any age group where such comparisons were possible.

V. SUMMARY OF MAJOR FINDINGS

The potential for delivery of educational programming through technology is ever present in American households. By the spring of 1985, radio and television could be found in virtually all households, regardless of family composition or income level, and about half of all persons in these households were receiving cable television services. Record players/stereos and audio-cassette players were available to eight out of ten adult household members, and to about nine out of ten children. More than one-fourth of all adults, and about one-third of the children, in American households had a video-cassette recorder available. About 13 percent of adults owned or had access to a personal or home computer in their household; and, again, household availability of this technology was slightly higher among children (about 20 percent).

About four out of five adults in computer-owning households indicated the availability of some kind of educational software, with about 90 percent of children under twelve years of age indicating availability of such software. Most persons in computer-owning households had several kinds of educational software available, with the median number of programs being three, and the most frequently named software being "computer basics" and mathematics.

Unlike the other household technologies, personal/home computers typically received relatively little use during the week. Only about one in five school-age children and adults in computer-owning households typically used the computer more than five hours per week; whereas, about one-third of school-age children and about half of adults in these households reported using the computer less than one hour in a typical week. Regardless of age, males were substantially more likely to use the computer than were females. While those who used the computer reported using it for a variety of purposes, more than 40 percent of all computer-owning families anticipated at the time of purchase that they would use the computer more than they actually do for each of these purposes.

The most important non-school learning activities of children and adults varied widely both within and across age groups. Books/magazines were the most frequently used learning resource by all age groups, with almost four out of five learners having used such material. Use of technology in learning was inversely related to age, with the percentage of persons indicating no use of

any technology (i.e., audio, video, or computers) in their most important learning being 15 percent of 2-5 year olds, 22 percent of 6-11 year olds, 32 percent of 12-17 year olds, and 43 percent of adults. Television programs, videocassettes, audiocassettes, phonograph records, and computer games or programs were all more likely to be used for learning by young children than by older children who, in turn, were more likely to use such materials than were adults. The reverse was true of radio programs, however, which were more frequently used for learning by adults and teenage children than by children under 12 years of age.

When a particular technology was used, it was typically used in combination with other technologies and/or printed material. Young children were particularly likely to have used combinations of resources in their learning; for example, almost half of the 2-5 year olds and nearly one-third of the 6-11 year olds used video and audio technologies as well as printed material in their most important learning activities. Unfortunately, no attempt was made in this study to determine the relative importance of these technologies/resources in learning (i.e., which was the primary instructional resource and which were supplemental).

Not surprisingly, the type of learning involved was found to be related to the likelihood of using a particular technology/resource. Books/magazines, records, audiocassettes, and computers were substantially more likely to be used for intellectual learning than for practical/recreational learning by children and adults. Radio and television program usage by children was rather consistent for both types of learning, but the percentages of adults using radio and/or TV programs were significantly higher for intellectual learning than for practical/recreational learning. Videocassette usage for each type of learning was not consistent across age groups, with greater proportional use for practical/recreational learning among 2-5 year olds and for intellectual learning among adults.

Use of a particular resource is frequently based on conscious decision-making rather than happenstance; and, therefore, it is contingent on awareness as well as availability. Regardless of the age of the learner, more than four out of five persons indicated awareness of specific books and/or magazines that could have been helpful in their learning. Awareness of helpful video program material was related to the age of the learner, with almost nine out of ten parents of preschool-age children indicating such awareness. Although

substantially lower for all groups, awareness of helpful audio material and computer games or programs was similarly related to learner's age. Most persons (three-fourths or more) in each age group who (or whose parents) were aware of print, video, audio, or computer program material that could have been helpful in their learning actually used such material. On the other hand, most of those who did not use a particular technology/resource in their learning indicated that they were not aware of any specific program materials that could have been helpful in that learning.

This study found that the great majority (over 95 percent) of learners were satisfied with the amount that they had learned, regardless of whether or not they used technology in the process. Attitudes regarding the utility or potential utility of available technologies/resources were not nearly so positive, however. Books/magazines and television programs received generally favorable ratings with respect to their actual or potential utility, regardless of learner age. In contrast, videocassettes, records, radio programs, audiocassettes, and computer games or programs were perceived as "not helpful" for more than half of all learners, regardless of age, with one exception: Phonograph records were perceived as "somewhat" or "very helpful" by about two-thirds of the parents of 2-5 year olds. In general, a positive relationship was found between the use of a particular resource and the perceived helpfulness of that resource for all age groups.

Appendix A

HITS Interview Items
(All Age Groups)

Appendix A

HITS Interview Items
(All Age Groups)

This appendix provides the contents of the four HITS survey interviews (one for each age group). Most questions are essentially the same for each age group and are asked in the same order. Some variation existed because not all questions were appropriate for all age groups and because children were not interviewed directly.

Survey (A) - solicits information about sampled 2-5 year olds from the parent or guardian. Since learning by 2-5 year olds is primarily other-directed, items in this interview were addressed to the parent/guardian as teacher.

Survey (B) & (C) - solicit information about 6-11 year olds and 12-17 year olds, respectively. In these interviews, the parent/guardian was asked to serve as a "proxy" respondent for the sampled child.

Survey (D) - solicits information about adults (18 year olds and older). All questions were posed directly to the sampled adult.

For clarity and ease of review the four surveys have been collapsed into the following composite. Questions are arranged in the order in which they were asked, the survey(s) in which the question appears is indicated, and changes in wording are indicated where necessary.

Survey -	A	B	C	D
Age Group -	2-5	6-11	12-17	18+

We are interested in the learning resources people use to help themselves, such as books, magazines, TV, home computers, etc.

1.	Do you have a television in your household? 1=Yes 2=No (skip to Q.4)	X	X	X	X
2.	Do you have cable TV? 1=Yes 2=No	X	X	X	X
3.	About how many hours of television does _ [(D) (do you)] watch:				
	a. on a typical weekday, including the evening? [Enter number of hours--Range: 00-24]	X	X	X	X
	b. on a typical weekend day (Saturday or Sunday), including evenings? [Enter number of hours--Range: 00-24]	X	X	X	X
4.	Is there a video cassette player or VCR in your home? 1=Yes 2=No	X	X	X	X
5.	Not counting electronic games, does anyone in your household own a personal or home computer? 1=Yes 2=No (skip to Q.13)	X	X	X	X
6.	What kind of personal computer do you have? [Record make/model--Limit of 20 characters]	X	X	X	X
7.	Does the computer have a:				
	a. Printer? 1=Yes 2=No	X	X	X	X

	A	B	C	D
b. Disk drive(s)?	X	X	X	X
1=Yes 2=No				
c. Monitor or screen (other than TV set)?	X	X	X	X
1=Yes 2=No				
d. Modem that allows you to dial up other computers?	X	X	X	X
1=Yes 2=No				
*8. At home, is the computer used (does _ use the computer) for:				
a. Entertainment, such as video games?	X	X	X	X
1=Yes 2=No				
b. Specific class assignments? [(A) (for students?)]	X	X	X	X
1=Yes 2=No				
c. Word processing or text editing?	X	X	X	X
1=Yes 2=No				
d. Learning about computers?	X	X	X	X
1=Yes 2=No				
e. Doing original [(B)(C) (_'s own)] [(D) (your own)] programming?	X	X	X	X
1=Yes 2=No				
f. Job or business-related tasks?	X			X
1=Yes 2=No				

* Values reordered

	A	B	C	D
g. Household record-keeping, taxes, etc.?	X			X
1=Yes 2=No				
h. Any other uses?	X	X	X	X
1=Yes 2=No				
9. About how many hours per week is the computer used with _ (does _ use the computer at home, do you use the computer at home)?	X	X	X	X
1=None 2=Less than 1 hour 3=1-5 hours 4=6-10 hours 5=11-15 hours 6=16-20 hours 7=More than 20 hours				
10. What kinds of educational software do you have for the home computer? That is, programs designed for helping people learn? Do you have . . .				
a. spelling?	X	X	X	X
1=Yes 2=No				
b. math?	X	X	X	X
1=Yes 2=No				
c. educational games (such as chess)?	X	X	X	X
1=Yes 2=No				
d. reading?	X	X	X	X
1=Yes 2=No				
e. computer basics (such as how to use computers)?	X	X	X	X
1=Yes 2=No				

	A	B	C	D
f. graphics? 1=Yes 2=No	X	X	X	X
g. any others? 1=Yes 2=No	X	X	X	X
11. What other kind of educational software do you have for your home computer? [Enter response below--limit of 20 characters]	X	X	X	X
*12. Do you or your family use the computer more, less, or about the same as you thought you would at the time you bought it? Do you use it . . .				
a. overall (for all uses)? 1=More 2=About the same 3=Less	X	X	X	X
b. for educational uses? 1=More 2=About the same 3=Less	X	X	X	X
c. for personal/family finances? 1=More 2=About the same 3=Less	X	X	X	X
d. for word processing? 1=More 2=About the same 3=Less	X	X	X	X
e. for games for entertainment? 1=More 2=About the same 3=Less	X	X	X	X

*Values reordered

	A	B	C	D
f. for business uses at home?			X	X
1=More 2=About the same 3=Less				
13. Does anyone in your household have a record player or stereo that plays records?	X	X	X	X
1=Yes 2=No				
14. Is there a cassette tape player in your home or car?	X	X	X	X
1=Yes 2=No				
15. Is it a portable tape player, an automobile tape player, or part of a home sound system?	X	X	X	X
[Record all that apply]				
1=Portable 2=Auto 3=Home system				
16. Does anyone in your household:				
a. get a daily newspaper?	X	X	X	X
1=Yes 2=No				
b. subscribe to a book club?	X	X	X	X
1=Yes 2=No				
c. subscribe to a magazine?	X	X	X	X
1=Yes 2=No				
d. have an encyclopedia or other reference books?	X	X	X	X
1=Yes 2=No				

	A	B	C	D
17. During the past year, have you participated in any training or educational programs, whether voluntary or as work-related requirements, that were provided by:				X
a. Your employer/company 1=Yes 2=Yes, required 3=No				X
b. Other business organization/company 1=Yes 2=Yes, required 3=No				X
c. The mass media (a TV course, for example) 1=Yes 2=Yes, required 3=No				X
d. Community service organizations (church, charity groups, etc.) 1=Yes 2=Yes, required 3=No				X
e. Other organizations/agencies (such as labor unions, professional associations) 1=Yes 2=Yes, required 3=No				X
18. You said that you had participated in a training or educational program provided by your employer/company. Approximately how many total days during the past year were you in training or educational programs offered by your employer or company? (Enter total number of days [range:001-366].)				X

A.6

	A	B	C	D
19. For the most recent of these programs (provided by your employer or company) did you personally have to pay any training fees? 1=Yes 2=No				X
20. You said that you had participated in a training or educational program provided by a business organization/ company other than your employer. Approximately how many total days during the past year were you in training or educational programs offered by a business organization/company other than your employer? (Enter total number of days [range:001-366].)				X
21. For the most recent of these programs (provided by a business organization/company other than your employer), did you personally have to pay any training fees? 1=Yes 2=No				X
22. You said that you have participated in a training or educational program provided by the mass media. Approximately how many total days during the past year were you in training or educational programs offered by the mass media? (Enter total number of days [range:001-366].)				X
23. For the most recent of these programs (provided by the mass media), did you personally have to pay any training fees? 1=Yes 2=No				X
24. You said that you have participated in a training or educational program provided by community service organizations.				X

	A	B	C	D
Approximately how many total days during the past year were you in training or educational programs offered by community service organizations? (Enter total number of days [range:001-366].)				
25. For the most recent of these programs (provided by community service organizations), did you personally have to pay any training fees? 1=Yes 2=No				X
26. You said that you have participated in a training or educational program provided by other organizations/agencies. Approximately how many total days during the past year were you in training or educational programs offered by other organizations/agencies? (Enter total number of days [range:001-366].)				X
27. For the most recent of these programs (provided by other organizations/agencies), did you personally have to pay any training fees? 1=Yes 2=No				X
*28. As I said earlier, we are interested in the kinds of things _ learns informally outside school. [(C) (people choose to learn)]. These may be both recreational or practical learning (that is, learning how to do something and applying it) and intellectual learning (that is, acquiring skills and knowledge for their own sake).	X	X	X	X
(A)(B)(C) During the past year, have you or anyone else in your household decided to help _ learn more about any recreational activities or practical skills? That is, in the past year, has _ learned any:	X	X	X	
(D) During the past year, have you tried to learn more about any recreational activities, hobbies, or practical skills in addition to any school or work requirements? That is, in the past year, have you learned any:				X

* Values reordered

	A	B	C	D
a. Sports/motor skills	X	X	X	X
[# of activities]				
b. Games	X	X	X	X
[# of activities]				
c. Art	X	X	X	X
[# of activities]				
d. Music	X	X	X	X
[# of activities]				
e. Dance/theatre	X	X	X	X
[# of activities]				
f. Household chores [(D) (Maintenance)]	X	X	X	X
[# of activities]				
g. Camping/hiking/outdoor survival	X	X	X	X
[# of activities]				
h. Crafts		X	X	X
[# of activities]				
i. Business/jobs[(B) (paper route)]		X	X	X
[# of activities]				
j. Child care			X	X
[# of activities]				
k. Driving a car			X	X
[# of activities]				
l. First aid/lifesaving			X	X
[# of activities]				
m. Social skills	X			
[# of activities]				

		A	B	C	D
	n. Tax preparation				X
	[# of activities]				
29.	Were there recreational or practical activities other than those we have already discussed? 1=Yes 2=No (skip to Q.31)	X	X	X	X
30.	Please specify any other recreational/ practical activities [Limit of 64 characters]	X	X	X	X
*31.	Now, let us turn to the other learning area--that is, intellectual learning.	X	X	X	X
	(A) During the past year, have you or anyone in your household tried to help _ learn more about...	X			
	(B)(C)(D) In addition to any school work or assignments, during the past year, has _ tried to learn more about:		X	X	X
	a. Science? 1=Yes 2=No	X	X	X	X
	b. Reading? 1=Yes 2=No	X	X	X	X
	c. Writing? 1=Yes 2=No	X	X	X	X
	d. Foreign language? 1=Yes 2=No	X	X	X	X
	e. Social relationships? 1=Yes 2=No	X	X	X	X

* Values reordered

	A	B	C	D
f. Health/hygiene/safety? 1=Yes 2=No	X	X	X	X
g. Animals/nature? 1=Yes 2=No	X	X	X	X
h. Math [(A) (numbers/counting/arithmetic)]? 1=Yes 2=No	X	X	X	X
i. Religion? 1=Yes 2=No	X	X	X	X
j. Career exploration? [(A) (awareness) (that is, different things people do for a living)]? 1=Yes 2=No	X	X	X	X
k. Family development? [(A)(relationships)]? 1=Yes 2=No	X	X	X	X
l. Computers? 1=Yes 2=No	X	X	X	X
m. Sex education [(A) (awareness)]? 1=Yes 2=No	X	X	X	
n. Civics/government? 1=Yes 2=No		X	X	X
o. History? 1=Yes 2=No		X	X	X

	A	B	C	D
p. Geography? 1=Yes 2=No		X	X	X
q. Nursery rhymes/fairy tales? 1=Yes 2=No	X	X		
r. Poetry? 1=Yes 2=No			X	X
s. Speech? 1=Yes 2=No	X			
t. Local directions [(A) (how to find way around neighborhood)]? 1=Yes 2=No	X			
32. Were there intellectual activities other than those that we have already discussed? 1=Yes 2=No (skip to Q.34)	X	X	X	X
33. Please specify any other intellectual activities [Limit of 64 characters]	X	X	X	X
*34. Considering both the recreational or practical and the intellectual activities you have mentioned, which of these learning activities would you say was most important--that is, the activity [(A) (learning)] on which _ [(D) (you)] spent the most time, or perhaps the one you think produced the biggest change in _'s [(D) (your)] life. [(A) (Please choose an activity in which you personally were involved in helping __ learn.)]	X	X	X	X
01=Sports	X	X	X	X
02=Games	X	X	X	X

* Values reordered

	A	B	C	D
03=Art	X	X	X	X
04=Music	X	X	X	X
05=Dance/theatre	X	X	X	X
06=Doing things around the home	X	X	X	X
07=Camping/hiking/outdoor survival	X	X	X	X
08=Other recreational activity	X	X	X	X
09=Science	X	X	X	X
10=Reading	X	X	X	X
11=Writing	X	X	X	X
12=Foreign language	X	X	X	X
13=Social relationships	X	X	X	X
14=Animals/nature study	X	X	X	X
15=Math	X	X	X	X
16=Religion	X	X	X	X
17=Health/hygiene/safety	X	X	X	X
18=Computers	X	X	X	X
19=Other intellectual activity	X	X	X	X
20=None mentioned	X	X	X	X
21=Sex education	X	X	X	
22=Crafts		X	X	X
23=Business/jobs		X	X	X
24=Civics/government		X	X	X
25=History		X	X	X
26=Geography		X	X	X
27=Career exploration		X	X	X
28=Family development		X	X	X
29=Nursery rhymes/fairy tales	X	X		
30=Child care			X	X
31=Driving a car			X	X
32=First aid/lifesaving			X	X
33=Poetry			X	X
34=Social Skills	X			
35=Career awareness	X			
36=Family relationships	X			
37=Speech	X			
38=Local directions	X			
39=Tax Preparation				X

35. Do you think _ would agree that _ was the most important for _, or would you say _ would have chosen another activity?

    1=Yes, would agree (skip to Q.37)
    2=No, would not agree

36. Which activity would _ have chosen?		X	X
01=Sports		X	X
02=Games		X	X
03=Crafts		X	X
04=Art		X	X

* Values reordered

	A	B	C	D
05=Music		X	X	
06=Dance/theatre		X	X	
07=Doing things at home		X	X	
08=Camping/hiking		X	X	
09=Business/jobs		X	X	
10=Other recreational activity		X	X	
11=Science		X	X	
12=Reading		X	X	
13=Writing		X	X	
14=Foreign language		X	X	
15=Social relationships		X	X	
16=Civics/government		X	X	
17=History		X	X	
18=Geography		X	X	
19=Animals/nature study		X	X	
20=Math		X	X	
21=Religion		X	X	
22=Career exploration		X	X	
23=Family development		X	X	
24=Sex education		X	X	
25=Health/hygiene/safety		X	X	
26=Computers		X	X	
27=Other intellectual activity		X	X	
28=Nursery rhymes		X		
29=Child care			X	
30=Driving a car			X	
31=First aid/lifesaving			X	
32=Poetry			X	
37. When you decided to help _ learn about _, would you tell me whether each of the following reasons was "very important," "somewhat important," or "not important."	X			
You read that it was time for _ to learn it.	X			
1=Very important 2=Somewhat important 3=Not important				
You heard on TV/radio that it was time for _ to learn it.	X			
1=Very important 2=Somewhat important 3=Not important				
Other family members/relatives suggested to you that _ learn it.	X			
1=Very important 2=Somewhat important 3=Not important				

	A	B	C	D
Friends suggested to you that _ learn it.	X			
1=Very important 2=Somewhat important 3=Not important				
_ asked you to help _ learn it.	X			
1=Very important 2=Somewhat important 3=Not important				
A recent experience _ had suggested to you that there was a need.	X			
1=Very important 2=Somewhat important 3=Not important				
Day care/pre-school staff recommended that you help _ learn it.	X			
1=Very important 2=Somewhat important 3=Not important				
You noticed that other children _'s age had learned or begun learning it.	X			
1=Very important 2=Somewhat important 3=Not important				
38. (B)(C) How do you think _ first became aware of and interested in _? Do you think it was: (D) How did you first become aware of and interested in _? Do you think it was:		X	X	X
1=through family involvement or observation of family members,		X	X	X
2=through friends' involvement,		X	X	X
3=by reading about it in a book, magazine, or newspaper,		X	X	X
4=through other media (radio, TV, or movies),		X	X	X
5=by watching a live performance/demonstration,		X	X	X
6=through school or course work/activities,		X	X	X
7=through job or business-related activities,		X		X
8=the result of a family purchase, or,		X	X	X
9=some other "personal" experience?		X	X	X

	A	B	C	D
39. Please indicate whether you think each of the following factors was "very important," "somewhat important," or "not important" in _'s [(D) (your)] decision to try to learn _:		X	X	X
a. Family influence/support 1=Very important 2=Somewhat important 3=Not important		X	X	X
b. Friends influence/involvement 1=Very important 2=Somewhat important 3=Not important		X	X	X
c. Role model in the media (sports hero, famous entertainer) 1=Very important 2=Somewhat important 3=Not important		X	X	
d. Employer/supervisor influence 1=Very important 2=Somewhat important 3=Not important				X
e. Wanting to be able to teach someone else 1=Very important 2=Somewhat important 3=Not important		X	X	X
f. Teacher/instructor's influence 1=Very important 2=Somewhat important 3=Not important		X	X	X
g. Cope with a personal or family crisis or problem 1=Very important 2=Somewhat important 3=Not important		X	X	X

		A	B	C	D
h.	Desire for self-accomplishment 1=Very important 2=Somewhat important 3=Not important		X	X	X
i.	Just interested in it 1=Very important 2=Somewhat important 3=Not important		X	X	X
40.	So far, how much time altogether [(D) (have you)] has _ spent learning _? Would you say. . . 1=less than 1 day? 2=more than 1 day but less than 1 week? 3=more than 1 week but less than a month? 4=more than a month?	X	X	X	X
41.	(A) Did anyone else in your household help [(D) (you)] _ with this learning in any way? . . . [(B)(C)(D) (including suggesting resources (books/magazines, TV programs, classes/courses, instructors) you could use)]? 1=Yes 2=No	X	X	X	X
42.	Who were the persons in your household who assisted?	X	X	X	X
a.	Spouse? 1=Yes 2=No				X
b.	Son/daughter? 1=Yes 2=No				X
c.	Parent/guardian? 1=Yes 2=No	X	X	X	
d.	Brother/sister? 1=Yes 2=No	X	X	X	

		A	B	C	D
e.	Other relatives? 1=Yes 2=No	X	X	X	X
f.	Other? 1=Yes 2=No	X	X	X	X
43.	How did you help _ in the learning activity? Did you . . . (D) How did these people help you in the learning activity? Did they . . .	X	X	X	X
a.	recommend people who could help or sources of information? 1=Yes 2=No		X	X	X
b.	give instruction/work together? 1=Yes 2=No	X	X	X	X
c.	encourage/give moral support? 1=Yes 2=No	X	X	X	X
d.	pay for classes, books, or other materials? 1=Yes 2=No	X	X	X	X
e.	provide transportation? 1=Yes 2=No	X	X	X	X
f.	provide other assistance? 1=Yes 2=No	X	X	X	X
44.	Did anyone outside your household help with this learning, such as by coaching, giving guidance, or helping to locate resources? 1=Yes 2=No (skip to Q.46)	X	X	X	X

		A	B	C	D
45.	Was it a:				
	a. (B)(C)(D) teacher/instructor/counselor? [(A) (day care or preschool staff?)] 1=Yes 2=No	X	X	X	X
	b. (A) neighbor/babysitter? [(B)(C)(D) (family friend?)] 1=Yes 2=No	X	X	X	X
	c. group leader (church or scout leader, coach?)? 1=Yes 2=No	X	X	X	X
	d. grandparent(s)? 1=Yes 2=No	X	X	X	
	e. son or daughter? 1=Yes 2=No				X
	f. other relative(s)? 1=Yes 2=No	X	X	X	X
	g. colleagues/business associates? 1=Yes 2=No				X
	h. (A) (B) _'s friends? [(C) (Peers)?] 1=Yes 2=No	X	X	X	
46.	Did anyone else in your household or any of _'s [(D) (your)] friends, try to learn along with _? [(D) (you)?] 1=Yes 2=No	X	X	X	X

		A	B	C	D
47.	(A) When you decided to help _ learn _ how did you begin? (B)(C) When _ decided to learn did _ first . . . (D) When you decided to learn _ did you first . . .	X	X	X	X
	a. ask for help from another person? 1=Yes 2=No	X	X	X	X
	b. seek information from something other than people (such as books/magazines, course offerings, etc.)? 1=Yes 2=No	X	X	X	X
	c. just start out to see what you could do without further help or information? 1=Yes 2=No	X			
48.	Did [(A) (_'s)] learning this activity also involve _ participation in:				
	a. a [(D) (study group)] club, team, or organized group of some kind? 1=Yes 2=No	X	X	X	X
	b. an organized group or team with a designated leader (coach)? 1=Yes 2=No				X
	c. formal classes or courses with a teacher and other learners? 1=Yes 2=No	X	X	X	X
	d. individual lessons with a teacher or instructor only? 1=Yes 2=No	X	X	X	X

	A	B	C	D
49. (A) How satisfied are you that _ is learning or has learned as much as you wanted _ to learn? Would you say . . .	X	X	X	X
(B)(C) How satisfied would you say _ is that _ is learning or has learned as much as _ wanted to learn? Would you say . . .				
(D) How satisfied are you that you are learning or have learned as much as you wanted to learn? Would you say . . .				
1=very satisfied, 2=somewhat satisfied, 3=somewhat dissatisfied, or 4=very dissatisfied?				
50. We would also like to know whether _ [(D) (you)] might do anything differently in [(A) (helping _ in)] the future. For each of the following statements, would you tell me whether you agree or disagree?	X	X	X	X
If [(A) (we)] [(D) (I)] _ had it to do over again, [(A) (I)] _ would probably: . . .				
a. try to get more expert instruction for _.	X	X	X	X
1=Yes 2=No				
b. [(A) (make _)] practice more (more doing rather than watching or listening).	X	X	X	X
1=Yes 2=No				
c. get more information before starting. [(A) (to teach _.)]	X	X	X	X
1=Yes 2=No				
d. try to get better feedback [(D) (about my)] to _ about _'s progress along the way.	X	X	X	X
1=Yes 2=No				

		A	B	C	D
e.	try not to learn [(A) (teach _)] so much so fast. 1=Yes 2=No	X	X	X	X
51.	What household resources other than people were used to help _ [(D) (you)] learn this activity? Did _ [(D) (you)] use...	X	X	X	X
a.	[(A) (children's)] books/magazines? [(B) (C)(D) (or newspaper articles?)] 1=Yes 2=No	X	X	X	X
b.	Television programs? 1=Yes 2=No	X	X	X	X
c.	Videocassettes? 1=Yes 2=No	X	X	X	X
d.	Records? 1=Yes 2=No	X	X	X	X
e.	Radio programs? 1=Yes 2=No	X	X	X	X
f.	Audiocassettes? 1=Yes 2=No	X	X	X	X
g.	Picture puzzles? 1=Yes 2=No	X			
h.	Toys? 1=Yes 2=No	X			

		A	B	C	D
i.	Computer games or programs? 1=Yes 2=No	X	X	X	X
52.	Did you or anyone in your household read to _ in helping _ learn _? 1=Yes 2=No	X			
53.	(A)(B) Did you visit a library or bookmobile with _ or borrow books, records, tapes, or computer games or programs from a library to help _ to learn _? (C)(D) Did _ [(D) (you)] visit a library or bookmobile, or borrow books, records, tapes, or computer games or programs from a library to help _ [(D) (you)] learn _? 1=Yes 2=No	X	X	X	X
54.	Would you tell me how helpful each of the following resources was or could have been in helping _ to learn this activity? For each, would you tell me whether it was or could have been "very helpful," "somewhat helpful," or "not helpful."	X	X	X	X
a.	[(A) (Children's)] books/magazines? [(B) (C)(D) (or newspaper articles?)] 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
b.	Television programs on a regular channel 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
c.	Television programs on a cable channel 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X

		A	B	C	D
d.	Videocassettes 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
e.	Records 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
f.	Radio programs 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
g.	Audiocassettes 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
h.	Picture puzzles 1=Very helpful 2=Somewhat helpful 3=Not helpful	X			
i.	Toys 1=Very helpful 2=Somewhat helpful 3=Not helpful	X			
j.	Computer games or programs 1=Very helpful 2=Somewhat helpful 3=Not helpful	X	X	X	X
55.	Are you aware of any specific instructional materials or programs which could have been used [(B)(C)(D) (with these resources)] to help _ [(D) (you)] learn _? That is, are you aware of any good...	X	X	X	X
a.	books/magazines that could have helped 1=Yes 2=No	X	X	X	X

		A	B	C	D
b.	TV programs that could have helped 1=Yes 2=No	X	X	X	X
c.	VCR tapes that could have helped 1=Yes 2=No	X	X	X	X
d.	records that could have helped 1=Yes 2=No	X	X	X	X
e.	radio programs that could have helped 1=Yes 2=No	X	X	X	X
f.	audiocassettes/tapes that could have helped 1=Yes 2=No	X	X	X	X
g.	picture puzzles that could have helped 1=Yes 2=No	X			
h.	toys that could have helped 1=Yes 2=No	X			
i.	computer programs that could have helped 1=Yes 2=No	X	X	X	X
56.	Now I would like to read you a list of statements about different styles of learning. For each one, please tell me if you agree or disagree with the statement.	X	X	X	X
a.	(A) I would rather have _ learn on _'s own than as part of a group with others.	X	X	X	X

		A	B	C	D
	(B)(C)(D) _ [(D) (I)] would rather learn on _'s [(D) (my)] own than as part of a group with others. 1=Agree 2=Disagree				
b.	_ [(D) (I)] learn(s) better in a classroom structure than by studying on _ [(D) (my)] own. 1=Agree 2=Disagree		X	X	X
c.	If _ [(D) (I)] really want(s) to learn something _ [(D) (I)] has (have) to enroll in a course. 1=Agree 2=Disagree		X	X	X
d.	(A) I prefer to have _ get information from people instead of books. (B)(C)(D) _ [(D) (I)] prefer(s) to get information from people instead of books. 1=Agree 2=Disagree	X	X	X	X
e.	(A) I prefer to set _'s pace of learning than having the pace set for _. (B)(C) _ prefers setting pace of learning to having the pace set for _. (D) I prefer setting my own pace of learning to having the pace set for me. 1=Agree 2=Disagree	X	X	X	X
57.	We were talking earlier about two major kinds of learning, the practical and the intellectual. We would like to know how useful you consider each of several ways of providing information to _ for both of these kinds of learning. I will read off each way of providing information and then ask you first about recreational/practical learning, and then about intellectual learning.	X	X	X	X

	A	B	C	D

Please tell me whether you think the way of providing information that I mentioned is "very useful," "somewhat useful," or "not useful at all."

a. Talking with someone knowledgeable about it. [(A) (Having _ talk with you about it.)] X X X X

Recreational/practical	Intellectual
1=Very useful	4=Very useful
2=Somewhat useful	5=Somewhat useful
3=Not useful	6=Not useful

b. Listening [(A) (Having _ listen)] to someone talk about it (lectures). X X X X

Recreational/practical	Intellectual
1=Very useful	4=Very useful
2=Somewhat useful	5=Somewhat useful
3=Not useful	6=Not useful

c. Looking [(A) (Having _ look)] at pictures (still photographs, slides, illustrations). X X X X

Recreational/practical	Intellectual
1=Very useful	4=Very useful
2=Somewhat useful	5=Somewhat useful
3=Not useful	6=Not useful

d. Reading [(A) (Having _ read)] words about it. X X X X

Recreational/practical	Intellectual
1=Very useful	4=Very useful
2=Somewhat useful	5=Somewhat useful
3=Not useful	6=Not useful

e. Watching [(A) (Having _ watch)] motion pictures, TV, or animated cartoons. X X X X

Recreational/practical	Intellectual
1=Very useful	4=Very useful
2=Somewhat useful	5=Somewhat useful
3=Not useful	6=Not useful

		A	B	C	D
f.	Watching [(A) (Having _ watch)] a live demonstration.	X	X	X	X

Recreational/practical

1=Very useful
2=Somewhat useful
3=Not useful

Intellectual

4=Very useful
5=Somewhat useful
6=Not useful

g.	(B)(C)(D) Trial and error actual practice. [(A) (having _ practice and learn by mistakes)].	X	X	X	X

Recreational/practical

1=Very useful
2=Somewhat useful
3=Not useful

Intellectual

4=Very useful
5=Somewhat useful
6=Not useful

58. When _ [(D) (you are)] is trying to learn something, how important is it for _ [(D) (you)] (statement). Would you say very important, somewhat important, or not important at all?

a.	to have a friend or another person who is involved in the same learning activity.	X	X	X	X

1=Very important
2=Somewhat important
3=Not important at all

b.	to get feedback; that is, some way of knowing how well _ is doing.	X	X	X	X

1=Very important
2=Somewhat important
3=Not important at all

c.	to get encouragement from someone.	X	X	X	X

1=Very important
2=Somewhat important
3=Not important at all

59. I have just a few more questions.

Approximately how many weekdays does _ typically spend some time at any of the following places? X

a. Day care center/program? X

[Enter number of days]

		A	B	C	D
	b. Nursery school?	X			
	[Enter number of days]				
	c. Kindergarten?	X			
	[Enter number of days]				
	d. Some other household?	X			
	[Enter number of days]				
60.	Is the day care program conducted or sponsored by a: 1=public school, 2=other public or government agency, 3=private--church-related organization, or 4=private--non-church-related organization?	X			
61.	Is the nursery school conducted or sponsored by a: 1=public school 2=other public or government agency 3=private--church-related organization, or 4=private--non-church-related organization?	X			
62.	Is the kindergarten conducted or sponsored by a: 1=public school 2=other public or government agency 3=private--church-related organization, or 4=private--non-church-related organization	X			
63.	I have just a few more questions. Does _ attend a public or private school? 1=Public 2=Private 3=Does not attend		X	X	
64.	Is there an adult at home when _ gets home from school? 1=Yes 2=No		X	X	

		A	B	C	D
65.	Before starting elementary school did _ ever attend:				
	a. Day Care Program? 1=Yes 2=No		X	X	
	b. Nursery School? 1=Yes 2=No		X	X	
	c. Kindergarten? 1=Yes 2=No		X	X	
66.	In a typical week, how many hours do you spend playing games with _, [(B)(C) (helping _ with _ school work)] reading to _ , or in similar activities with _? [Enter number of hours--Range: 00-80]	X	X	X	
67.	Does _ have:				
	a. own room in your house 1=Yes 2=No	X	X	X	
	b. a regular bedtime 1=Yes 2=No	X	X	X	
	c. a regular time to do homework 1=Yes 2=No		X	X	
68.	Which of the following statements describe your involvement in the children's homework from school?		X	X	X
	a. I review the work and check accuracy		X	X	X
	b. I help the children do the work		X	X	X

		A	B	C	D
69.	Would you classify yourself as: 1=white 2=black 3=hispanic 4=asian american 5=american indian, or 6=other?	X	X	X	X
70.	Does _ live with one parent or guardian or with two parents or guardians? 1=One 2=Two	X	X	X	
71.	Which of the following describes your relationship to _? Are you the: 1=natural parent 2=adoptive parent 3=foster parent 4=stepparent 5=other relative, or 6=not related?	X	X	X	
72.	About how often do you watch the news on television? Would you say... 1=Every day 2=A few times a week 3=Once a week 4=Less than once a week 5=Never				X
73.	About how often do you read the newspaper? Would you say... 1=Every day 2=A few times a week 3=Once a week 4=Less than once a week 5=Never				X
74.	In the past year, have you or your spouse ever				X
	a. Written to an elected official or your newspaper				
	b. Attended a public meeting on town or school affairs				X

		A	B	C	D
	c. Served as an officer or on a committee for some civic, church, or political organization				X
	d. Signed a petition				X
	e. Made a public speech				X
75.	Are you currently employed, either full time or part time, outside the home? 1=Yes, full time. 2=Yes, part time. 3=No (skip to Q.77).	X	X	X	X
76.	What is your occupation? [Enter verbatim response. Limit of 40 characters.]	X	X	X	X
77.	Is your spouse currently employed, either full time or part time, outside the home? 1=Yes, full time. 2=Yes, part time. 3=No 4=Not applicable (no spouse) [Skip to Q.79]	X	X	X	X
78.	What is your spouse's occupation? [Enter verbatim response. Limit of 40 characters.]	X	X	X	X
79.	Are you currently enrolled in school, college, or other formal classes for credit, either full time or part time? 1=Yes, full time 2=Yes, part time 3=No				X
80.	What type of certificate, diploma, or degree are these classes or courses leading toward? 1=8th grade certificate 2=High school diploma or equivalency certificate 3=Certificate or post-high school diploma in a vocational program 4=2-year degree from a college or technical institute 5=4-year degree from a college or university 6=Graduate or professional degree 7=Other 8=Not leading to any certificate, diploma, or degree				X

	A	B	C	D
81. What is the last grade of regular school that you [(D) (and your spouse)] have completed, not counting specialized schools like secretarial, art or trade schools. First, your education? 0=No school 1=Grade school (1-8) 2=Some high school (9-11) 3=High school graduate (12) 4=Some college (13-15) 5=College graduate (16) 6=Post graduate (17+) [(D) (7= No spouse . . . N/A)]	X	X	X	X
82. And now, the other parent/guardian's [(D) (your spouse's)] education?	X	X	X	X
83. Finally, including everyone in your family who works, which category best describes your family's total income before taxes last year? Was it: 1=Less than $10,000, 2=Between $10,000 and $20,000, 3=Between $20,000 and $40,000, or 4=More than $40,000?	X	X	X	X

Appendix B

Summary of HITS Study Design and Survey Methodology

Appendix B

Summary of HITS Study Design

and Survey Methodology

Roles of CPB and RTI in the HITS Survey

RTI was survey subcontractor. At the Corporation for Public Broadcasting (CPB), considerable guidance and assistance in the data acquisition and processing activities were provided by Dr. John A. Riccobono, the CPB Principal Investigator, who was on site at RTI during most of the operational period. Direct assistance with aspects of data acquisition and processing were also provided by the central CPB study staff, Mr. Richard Grefe', Mr. Edward Coltman, and Ms. Joan Katz. CPB staff also reviewed previous drafts of this document and provided helpful suggestions and insights for improving the report.

At RTI statistical assistance in sampling, weighting, and tabulations was provided by Dr. Roy Whitmore and Dr. Robert Mason. Ms. Jan Whelan provided major contributions in all areas of computer support, including programming of the CATI instrument, development and execution of the computer-based control system, and preparation of the final data base. Ms. Judy Lynch, with assistance from Mr. Dale DeWitt, developed interviewer training material and conducted all interviewer training. The interviewers were hired and monitored by RTI.

HITS Study Design and Survey Methodology

A. The Sample

The HITS-85 sample included four specific age groups: 2 to 5 year olds; 6 to 11 year olds; 12 to 17 year olds; and adults (18 years old and over). The target population was defined to be individuals who were:

(1) at least two years of age as of the interview date;

(2) residing in the coterminous United States in a household or in a

noninstitutional dwelling unit (e.g., apartment, dormitory, or boarding house room) containing no more than nine unrelated individuals and served by a private telephone; and

(3) residing in a household or noninstitutional dwelling unit with at least one English-speaking adult family member also in residence.

It should be clearly recognized, however, that condition (2) restricts the population of interest to individuals in residences served by a telephone (although allowances were made to generalize results to cases for which multiple residences were served by a single telephone). Less than one-eighth of one percent of contacted telephone numbers were excluded because no English-speaking adult lived in the household.

Generally, the sample design called for a two-stage sample of individuals (selection of households and subsequent selection of individuals within households). Household sampling relied on a cost-effective random digit dialing (RDD) procedure, which in itself is a multi-stage sampling approach to producing an approximately equal probability sample of households. Given selection of households, individuals were selected from the households at rates established to meet study response targets within the four age groups of interest. Target sample sizes for each age group were: 2,203 2-5 year olds; 1,102 6-11 year olds; 552 12-17 year olds; and 1,650 adults. The individual sampling procedure allowed for selection of no more than one individual per age group existing in each household. Thus, the per-household yield for sample members was expected to range from none to four, depending on the age-group composition of the household.

To avoid erosion of precision due to unequal weighting, the sample was generally designed to produce an approximately self-weighting sample of individuals within each age group. For the three older age groups, a household was to be selected to provide a member of some age group with probability approximately proportional to

the size of that age-group membership within the household; and then, if the household were selected to represent that age group, a single member of the age group was to be chosen at random. Because of the disproportionately large number of 2-to-5-year-old sample members required by the study (i.e., this age group is the rarest in the population but required the largest sample), the self-weighting nature of the sample design was somewhat constrained regarding this youngest age group. Cost-efficient design called for selection of a household to represent this age group, whenever the age group was present in the household, and the subsequent random selection of a specific individual within the age group.

Since the household sampling approach called for sampling of households with replacement, repeated sampling of the same household was expected at the second stage. However, despite the legitimacy of with-replacement replication, specified minimal numbers of unique respondents were developed and obtained.

A short screening interview was administered to all identified households that would participate, and a roster of household members was constructed for those families who responded. Any adult (at least 18 years old) household member was allowed to provide the roster information. Name, age, and sex of each individual who currently resided permanently within the household (excluding visitors and household members away at school or in military service, institutionalized, or otherwise not available) were entered on this household roster. Subsequently, an equal probability subsample of the members of each sample design age group (2-5, 6-11, 12-17, and 18+) was then selected from the members of the age group in households successfully screened.

In order to reduce the unequal weighting effect due to random selection of a sample subject within the three older age groups, the j-th household was selected to provide a member for the i-th age group sample with probability P(i,j), given by

$$P(i,j) = \text{minimum } (1,\ S(i,j)R(i)), \qquad (1)$$

where S(i,j) is the number of members of the i-th age group in the j-th household, and R(i) is the age-group-specific selection rate which is constant over households. The selection rate R(i) is defined as

$$R(i) = n_i / S(i,+),$$

where n_i is the desired sample size (including potential refusals) and S(i,+) is the expected number of members of the i-th age group that will be found in households successfully screened. The value of S(i,+) was based on 1980 Census data.

Since the rarest age group in the population was the youngest (i.e., 2 to 5 year olds, which occurs in the population in about 12 percent of households), and since this age group also required the largest number of sample members, the overall sample was designed to produce no more than the number of households necessary to satisfy the sample requirements in this age group. This number of households would then necessarily satisfy requirements for the less rare age groups from which fewer sample members were needed. Consequently, the value of S(i,+) for the 2-to-5-year-old age group exceeded n_i by only a relatively small amount (since more than one person in this age group could be expected in some households), and the value of R(i) for the 2-to-5-year-old age group was set to unity.

Within the CATI environment, the selection probabilities given by (1) for each age group were evaluated independently for each sample household as soon as the household roster had been completed. A household was then selected to provide a member for the i-th age group sample with the probability P(i,j), comparing the computed value of (1) with a computer-generated random variate. (It was obviously possible for a household to be selected to provide a member for more than one age group sample if more than one age group was present in the household.) When a household was selected to

provide a member for the i-th age group sample, one member of the age group was selected at random from members of that age group in the household, that is, with probability 1/S(i,j). No more than one sample member per age group was selected from a household, and an individual household rarely contained more than two sample members.

A disadvantage of this procedure is that the number of households selected to provide a member for the i-th age group sample is a random variable. Nonetheless, the sample yield was carefully monitored and the selection rate given by (1) was adjusted during the survey to fine tune the obtained sample size for each age group. (See Methodology Report.) These associated variations in the age group selection rates were reflected by corresponding variations in the sample weights (Methodology Report); otherwise, selection probabilities were roughly equal for all sample members within the three older age groups.

The design did experience a small degree of differential weighting within the three older age groups in those cases where the value of S(i,j)R(i) given in (1) exceeded unity; however, this deviation from a strictly self-weighting sample was quite minor compared to departures introduced through weight adjustments for multiple households per telephone and multiple telephones per household (Methodology Report). The specific values of R(i) that were used to determine P(i,j) for the three older age groups were:

6 to 11 year olds	.2312
12 to 17 year olds	.1182
Adults	.0446

It should be noted that the effects of unequal weighting in the older age groups would occur only rarely using these parameters. In the 6-to-11-year-old group the number of household members in this age group (S(i,j)) would have to exceed 4; in the two successively older age groups, S(i,j) would have to exceed 8 and 22, respectively.

Since the design provided the minimum number of households required so that one selection per age-eligible household was expected to yield the desired number of

2-to-5-year-old sample subjects, the unequal weighting design effect was greater for the 2-to-5 age group. When one or more members of that age group were present, the household was selected to provide a 2 to 5 year old with certainty; and then one of the household members in that age group was selected randomly. Thus, the probability of selecting a specific 2 to 5 year old in the population was inversely proportional to the number of members in that age group within the household containing the specific individual. (These probabilities were typically 1/2 or 1, but in some cases 1/3, resulting in a 3-to-1 weight differential in the latter case--see the Methodology Report.)

Specifications for unique respondents within each age group were:

1,800	2 to 5 year olds;
900	6 to 11 year olds;
450	12 to 17 year olds; and
1,350	adults.

Accounting for both replication and anticipated within-age-group response rates, the required sample sizes for each age group were estimated to be:

2,382	2 to 5 year olds;
1,198	6 to 11 year olds;
627	12 to 17 year olds; and
2,196	adults.

The final sample design (see below) reflected this requirement.

The exact sample design underwent several revisions during the course of the study. Specifically, changes in overall sample size and proportional allocation of sample members among the four age groups were introduced by CPB and CS after initial plans had been implemented. Consequently, the final sampling plan was submitted some two weeks after the telephone survey had begun. Because of the automation built into

the sampling process, these changes did not adversely affect either sample integrity or survey operations.

Other refinements to the sample design were initiated during the course of the survey, as it became evident that certain parameter estimates used in the sample design (e.g., age-group existence rates, household identification and rostering rates, replicate sampling rates, and within-age-group response rates) were not being realized. These refinements were initiated to accomplish a closer approximation to targeted numbers of unique respondents; they were easily implemented within the automated sampling environment. (See the Methodology Report for a detailed treatment of sample design revisions and refinements.)

The final refined sample design for the HITS-85 survey is shown in Table B1. The design called for 997 Mitofsky/Waksberg Primary [first stage sampling unit (FSU)] Households, which with an optimum cluster size of 21 (see Methodology Report) provided a total of 20,937 total sample households (including replications).

Table B1 dramatically portrays the probabilistic nature of Mitofsky/Waksberg RDD design. Only the number of households to be identified (sections B, D, and F of the table) can be precisely specified. The number of telephone numbers to be worked to realize these fixed requirements (i.e., sections A, C, and E of the table) are expectations based on the identification rates projected in sections B and D of the table. Responding households (i.e., households providing at least rosters of household membership) and the number of age-group sample candidates are also expectations, based on the response and existence rates specified in section G of the table. Likewise, the actual number of sample members selected in most age groups are expectations based on the average sampling rates shown in section H of the table. Finally, both overall numbers of respondents and unique numbers of respondents are expectations based on the response rates and replication rates indicated, respectively, in sections I and J of the table.

Table B1

Final Refined Sample Design
for the HITS-85 Sample

A. Primary Telephone Numbers Expected		5,332
B. Sample FSUs Identified (18.5% of A)[a]		997[b]
C. Secondary Telephone Numbers Expected		35,607
D. Additional Sample Households Identified (56% of C)[a]		19,940[b]
E. Total Telephone Numbers Expected (A + C)		40,939
F. Total Sample Households (B + D)		20,937[b]
G. Responding Households Expected (87.5% of F)[a]		18,320
1. With 2-to-5-year-olds (13% of G)[a]	2,382	
2. With 6-to-11-year-olds (16.9% of G)[a]	3,096	
3. With 12-to-17-year-olds (18.7% of G)[a]	3,426	
4. With 18+-year-olds (99.9% of G)[a]	18,302	
H. Sample Members Expected		6,403
1. 2-to-5-year-olds (100% of G.1)[c]	2,382	
2. 6-to-11-year-olds (38.7% of G.2)[c]	1,198	
3. 12-to-17-year-olds (18.3% of G.3)[c]	627	
4. 18+-year-olds (12% of G.4)[c]	2,196	
I. Expected Number of Respondents		5,507
1. 2-to-5-year-olds (92.5% of H.1)[a]	2,203	
2. 6-to-11-year-olds (92% of H.2)[a]	1,102	
3. 12-to-17-year-olds (88% of H.3)[a]	552	
4. 18+-year-olds (75% of H.4)[a]	1,650	
J. Expected Number of Unique Respondents (81.7% of I)[a]		4,500
1. 2-to-5-year-olds	1,800	
2. 6-to-11-year-olds	900	
3. 12-to-17-year-olds	450	
4. 18+-year-olds	1,350	

[a] Based on study results through May 24, 1985.

[b] These figures are fixed sample sizes for the revised design, but all other figures shown are the expected values of random variables.

[c] These rates were established to approximate the targeted number of respondents, given other rates that were being experienced in the survey.

Given the basic design of the study, it can be seen from Table B1 that the major revisable free parameters available for control of realized respondent sizes are the number of primary FSU households (section B) and within-age-group sample rates (section H). Because the final sample design was refined by adjusting these parameters to accommodate other rates that were being experienced, relatively tight control of targeted respondent samples was achieved. The several realized rates, as compared to those projected in the revised design, are shown in Table B2.

The implementation of Mitofsky/Waksberg sampling is an interactive process; and, as indicated previously, sampling of individuals was acomplished in real time during the actual telephone interview. The general flow of implementing these sampling procedures is shown in Figure 1. The first three steps of the sampling process represent the stages of the Mitofsky/Waksberg household sampling process, while the fourth step is the within-household selection of individuals. Step 1 shows the procedures for generating primary random telephone numbers, while step 2 shows the interactive determination of the 997 primary FSU households. Step 3 shows the sampling of telephone numbers within established FSU telephone clusters as well as the interactive determination of secondary households. Step 4, individual sampling within households, is applicable to both primary FSU households and secondary households.

B. Data Collection

Following a major field test, preliminary instruments (one for each age group) and a household screening form to be used in the study were revised and reformatted for computer-assisted telephone interviewing (CATI). The revised instrumentation was subjected to a clinical field test and, as a result, further revised and reformatted to be more compatible with telephone administration. The final instruments, together with other necessary household screening, sampling, recordkeeping, and control elements were integrated into a CATI administration system for use during the survey. Individual interview questions were directed to those respondents who would best be

Table B2

Projected Rates
Compared to Obtained Rates

Estimate	Projected Rate[a]	Obtained Rate
Primary household identification rate	18.5%	18.7%
Secondary household identification rate	56.0%	48.0%
Household rostering rate	87.5%	89.3%
Rostered households with:		
2-to-5-year-olds	13.0%	12.9%
6-to-11-year-olds	16.9%	16.9%
12-to-17-year-olds	18.7%	19.2%
Adults	99.9%	99.9%
Sampling rates		
2-to-5-year-olds	100.0%	100.0%
6-to-11-year-olds	38.7%	39.6%
12-to-17-year-olds	18.3%	17.3%
Adults	12.0%	12.4%
Response rates[b]		
2-to-5-year-olds	92.5%	95.9%
6-to-11-year-olds	92.0%	91.3%
12-to-17-year-olds	88.0%	90.6%
Adults	75.0%	75.6%

[a] Based on refined sample design.

[b] Including interviews with some item nonresponse.

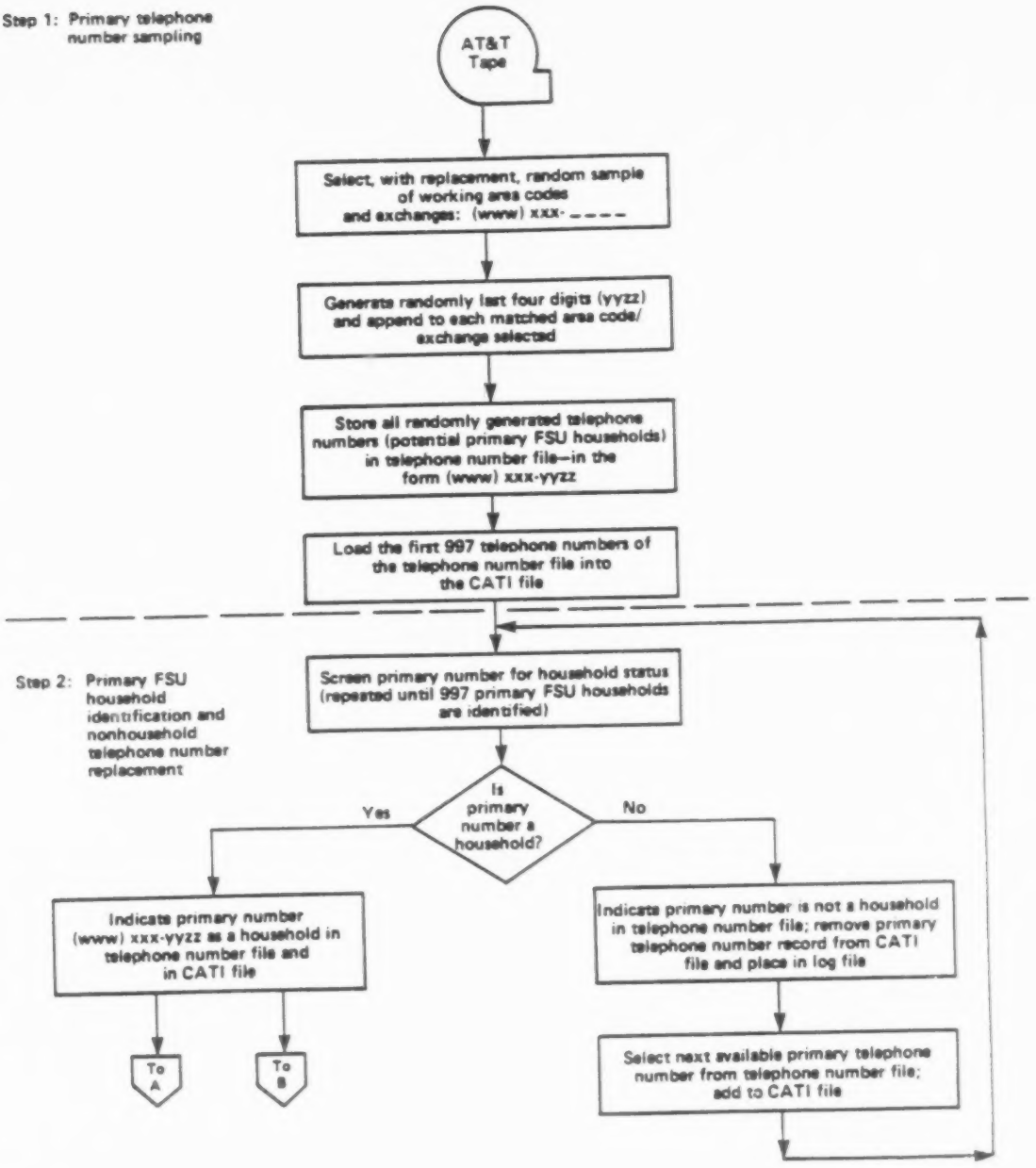
Step 1: Primary telephone number sampling
AT&T Tape
Select, with replacement, random sample of working area codes and exchanges: (www) xxx- - - -
Generate randomly last four digits (yyzz) and append to each matched area code/ exchange selected
Store all randomly generated telephone numbers (potential primary FSU households) in telephone number file—in the form (www) xxx-yyzz
Load the first 997 telephone numbers of the telephone number file into the CATI file
Step 2: Primary FSU household identification and nonhousehold telephone number replacement
Screen primary number for household status (repeated until 997 primary FSU households are identified)
Is primary number a household?
Yes
No
Indicate primary number (www) xxx-yyzz as a household in telephone number file and in CATI file
To A
To B
Indicate primary number is not a household in telephone number file; remove primary telephone number record from CATI file and place in log file
Select next available primary telephone number from telephone number file; add to CATI file

Figure 1. Flow of HITS Sample Implementation.

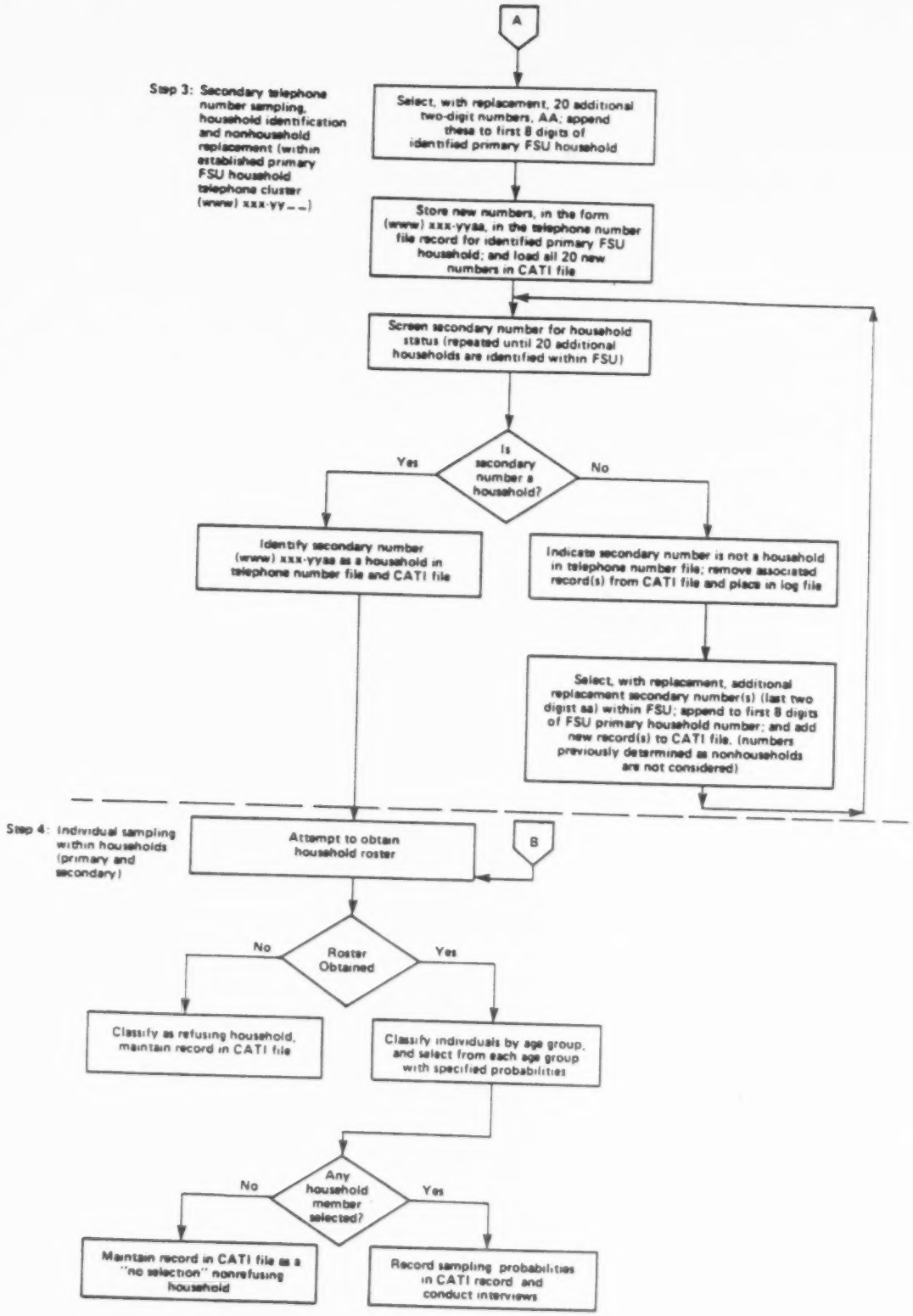
A
Step 3: Secondary telephone number sampling, household identification and nonhousehold replacement (within established primary FSU household telephone cluster (www) xxx-yy__)
Select, with replacement, 20 additional two-digit numbers, AA; append these to first 8 digits of identified primary FSU household
Store new numbers, in the form (www) xxx-yyaa, in the telephone number file record for identified primary FSU household; and load all 20 new numbers in CATI file
Screen secondary number for household status (repeated until 20 additional households are identified within FSU)
Is secondary number a household?
Yes
No
Identify secondary number (www) xxx-yyaa as a household in telephone number file and CATI file
Indicate secondary number is not a household in telephone number file; remove associated record(s) from CATI file and place in log file
Select, with replacement, additional replacement secondary number(s) (last two digit aa) within FSU; append to first 8 digits of FSU primary household number; and add new record(s) to CATI file. (numbers previously determined as nonhouseholds are not considered)
Step 4: Individual sampling within households (primary and secondary)
Attempt to obtain household roster
B
Roster Obtained
No
Yes
Classify as refusing household, maintain record in CATI file
Classify individuals by age group, and select from each age group with specified probabilities
Any household member selected?
No
Yes
Maintain record in CATI file as a "no selection" nonrefusing household
Record sampling probabilities in CATI record and conduct interviews

Figure 1 (continued)

able to provide the requested information reliably. Thus, adult sample members were interviewed directly, but proxy interviews with an adult family member (i.e., the parent or guardian most involved in the child's education) were conducted for all sample members under 18 years of age. It was felt that any limitations of the ability of proxies to report for their children were outweighed by the potential data quality and telephone interviewing problems associated with interviewing children directly.

All telephone interviewers received extensive training over a two-day period both in general CATI operations and in the specific administration of each HITS interview question. Actual data collection took place over a period of approximately four and one-half months, from 11 February to 22 June 1985. Telephone interviewing was conducted as a 7-day-a-week operation, with two interviewer shifts. Up to 18 interviewers were employed per shift; and two supervisors were on hand to provide assistance and quality control, including "listen-in" monitoring of actual interviews performed by each interviewer.

With the exception of the production shortfalls resulting from interviewer turnover and the associated need to extend the survey schedule, few problems were experienced with survey operations. Daily monitoring of results allowed most problems to be quickly resolved before they could generate related downstream problems. Also, daily monitoring allowed sampling refinements to guard against shortfalls of respondent targets.

In conducting the HITS-85 survey, a total of 38,566 unique telephone numbers were called, and 16,951 (44 percent) of them were identified as households. Among identified households, almost 90 percent were rostered; and of those rostered, individuals were sampled from approximately 30 percent. Response rates for the sampled individuals were approximately 96 percent, 91 percent, 91 percent, and 76 percent for the four age groups, from youngest to oldest.

Sampling Replication and Within-Household Selection

Replication statistics for the 16,951 unique households selected are provided in Table B3. The distribution approximates our projections reasonably well. Although greater numbers of multiple replications were obtained in the categories greater than 3 than we had projected, this was caused by the use of an average household identification rate within cluster for the projection modeling. That model quickly breaks down in clusters with sparse total available numbers (principally clusters in rural areas) or households (principally in urban areas).

Projected and realized selections within unique households are shown in Table B4. Obtained results quite closely approximate those projected from the final refined sample design.

Household-Level Results

The final household-level result status of all identified households (both total and unique) is shown in Table B5. It is important to note that the percentage distributions of households across the final result status classifications are markedly similar. (The largest percentage difference between unique and total cases in any result category is no more than seven-tenths of a percentage point.) This provides empirical indication that sample replications were not differentially represented in certain household-status categories (which, theoretically, they would not be expected to be).

Table B5 clearly indicates the limited return of RDD samples for specific respondent group targets. In well over 60 percent of all identified households, no respondent was selected. When this is corrected for households that were not rostered (a requirement for sampling), the "null" household rate approaches 70 percent. Table B5 shows that the rostering of identified households approached the quite respectable rate of 90 percent.

Table B 3
Distribution of Household Sample Replications

Number Times Household was Sampled									Total
1	2	3	4	5	6	7	8	9 or more	
13,690 (80.8%)	2,766 (16.3%)	374 (2.2%)	73 (0.4%)	27 (0.2%)	7 (*)	6 (*)	2 (*)	6 (*)	16,951 (100%)

NOTE: Based on unique households; percentage of row total is provided in parentheses. Projected total of replicated household was 18.3 percent.
* Less than 0.05 percent.

Table B 4
Projected and Realized Distribution of Selections Within Households

Number of Within-Household Selections	Projected[a]	Realized
0	10,689 (70.69%)	10,530 (69.64%)
1	3,689 (24.40%)	3,810 (25.20%)
2	679 (4.50%)	709 (4.69%)
3	62 (0.41%)	69 (0.46%)
4	2 (0.01%)	3 (0.02%)
Total	15,121 (100%)	15,121 (100%)

NOTE: Based on unique identified and rostered households. Projected and realized rates are given in parentheses.

[a] Projected rates were obtained from final refined age-group sampling rates applied to the probability distribution of national household age-group compositions. Computed rates were then applied to actual number of rostered unique households.

Table B 5

Final Result Status of Identified Households

	Status					Total
	Household Roster Refusal or Impossible	Roster Completed None Sampled	Interview Refusal or Impossible	Final Partial Completion	Final All Interviews Completed	
Total	2,251 (10.8%)	13,100 (62.6%)	582 (2.8%)	437 (2.1%)	4,567 (21.8%)	20,937 (100%)
Unique	1,830 (10.8%)	10,530 (62.1%)	486 (2.8%)	356 (2.1%)	3,749 (22.1%)	16,951 (100%)

NOTE: Percentages of total are provided in parentheses.

Individual-Level Results

Results specific to individuals in the four age groups within rostered households are provided in Table B6 (for both unique and total--with replication--cases). The very close agreement between total and unique results is again demonstrated in this table, even in relatively low-frequency cells. The first principal row of Table B6 ("Age Group Present") addresses existence rates of the age groups in rostered households. Existence rates differ by no more than six-tenths of a percentage point from those projected by the final refined sample design.

Obtained selection rates within households containing age group members are shown in Row 2 of Table B6. While these obtained rates fluctuate somewhat more from expected rates, they are not systematically higher or lower than expectations; and departures seem greatest in the groups from which fewer cases were to be selected. Thus, departures appear to represent no more than simple fluctuations in the random process used in selection.

Rows 3 through 6 of the table provide the final status of individuals selected into the sample within each age group. Generally, results for the 6-to-11-year-old group and the 12-to-17-year-old group are quite similar. Cooperation rates are slightly higher for the 2-to-5-year-old group and markedly lower for the adult group. All results are generally higher than projected in the final refined sample design.

Estimates of overall sample response rates (accounting for both potential selections from unrostered households and responses of selected individuals within rostered households) cannot be determined directly, for two principal reasons. First, exact existence rates of the several age groups in unrostered households are undetermined (by definition); second, within-household sampling could not be implemented in unrostered households (again, by definition). An indirect estimate of this overall response rate is possible, however, by assuming that individuals from the four age groups would have existed in the unrostered households at the same rate as in rostered households (Table B6) and, where existing, would have been selected at the

Table B6

Final Individual-Level Status within
Rostered Households by Age Group

	Age Group Base	Age Group				Unduplicated Household Count
		2-5	6-11	12-17	18+	
Age Group Present	Total	2,422 (13.0%)	3,160 (16.9%)	3,601 (19.3%)	18,661 (99.9%)	18,686
	Unique	1,951 (12.9%)	2,578 (17.0%)	2,966 (19.6%)	15,104 (99.9%)	15,121
Age Group Selected	Total	2,422 (100%)	1,250 (39.6%)	624 (17.3%)	2,310 (12.4%)	
	Unique	1,951 (100%)	1,024 (39.7%)	526 (17.7%)	1,946 (12.9%)	
Age Group Refusal	Total	67 (2.8%)	84 (6.7%)	45 (7.2%)	394 (17.1%)	
	Unique	56 (2.9%)	68 (6.6%)	34 (6.5%)	331 (17.0%)	
Age Group Other Non-Completion	Total	31 (1.3%)	25 (2.0%)	14 (2.2%)	161 (7.0%)	
	Unique	26 (1.3%)	21 (2.1%)	13 (2.5%)	136 (7.0%)	
Age Group Partial Interview	Total	113 (4.7%)	40 (3.2%)	23 (3.7%)	142 (6.1%)	
	Unique	88 (4.6%)	34 (3.3%)	19 (3.6%)	118 (6.1%)	
Age Group Complete Interview	Total	2,211 (91.3%)	1,101 (88.1%)	542 (86.9%)	1,613 (69.8%)	
	Unique	1,781 (91.2%)	901 (88.0%)	460 (87.5%)	1,361 (69.9%)	

NOTE: Percentages are provided in parentheses. For Row 1 (age group present), percentages are based on the unduplicated household count. For Row 2, percentages are based on Row 1 counts. For Rows 3 through 6, percentages are based on Row 2 counts.

Table B7

Estimated Overall Response Rates by Age Group

Age Group	Estimated Numbers of Age Group That Would Have Been Selected			Respondents[c]	Estimated Overall Response Rate
	Estimate From Unrostered Households[a]	Selections From Rostered Households[b]	Estimated Total		
2-to-5-Year-Olds	236	1,951	2,187	1,869	85.5%
6-to-11-Year-Olds	120	1,024	1,144	935	81.7%
12-to-17-Year-Olds	66	526	592	479	80.9%
Adults	219	1,946	2,165	1,479	68.3%

NOTE: All calculations based on unique household cases.

[a] Determined from 1830 unique unrostered households, adjusted for empirical existence rates (Table E.8) and actual sampling rates (see Methodology Report).

[b] From Table E.8.

[c] Partial and complete interviews, as shown in Table E.8.

applicable sampling rates. Under these assumptions, the overall response rates are estimated in Table B7.

C. Data Processing

Given the CATI mode of data collection, all interview data collected (or internally generated, such as sampling parameters) were available in the machine-readable, household-level CATI file as soon as the survey was concluded. Also, because of the real-time edits, recodings, and checks built into the CATI program, much of the recoding, range checking, consistency checking, and skip-pattern checking had already been performed as the data were collected. Further, corrections of specific problematic data records as reported by study interviewers and supervisors, or detected from the daily computer-generated control reports, had been made on a continuing basis during data collection. Consequently, the data file available at the conclusion of survey operations was relatively clean.

Nonetheless, additional data editing and processing were required to remove previously undetected data errors. Certain post-hoc coding operations also were required, and it was necessary to otherwise standardize and clean the file toward preparation of a final deliverable data file, with associated documentation.

The specific post-data collection processing steps performed included:

- Reconciliation of individual and household-level result codes.
- Addition of computed weights to the data file.
- Subsetting the file to households with some questionnaire data. (For a large number of CATI records, no one was selected from the household; in a smaller number of cases, no data were provided on any selected individual. Such basically blank records were not considered appropriate for a data file.)
- Assignment of appropriate nonresponse codes to blank data fields (omitted due to noncompletion of all or part of an interview).

- o Replication of redundant information within multiple-interview household records (to include the household-level data in the age-group-specific questionnaire data where such redundant material had not been additionally requested).
- o Post-hoc coding of certain responses to open-ended items.
- o Additional editing of skip patterns (with assignment of appropriate missing value codes and resolution of detected errors).
- o Preparation and documentation of the deliverable data file.

D. Weighting and Nonresponse Adjustments

To accommodate appropriate analysis of data, within-age-group sampling weights were computed for each household member selected into the sample. In essence, the sampling weight assigned was a function of the inverse of the probability of selecting the particular sample unit (age-group member) into the sample.

Further, to correct as much as possible for the potential bias introduced by nonresponse, the raw sampling weights were adjusted for complete instrument nonresponse (i.e., provision of no data or minimal data by or for an individual as a consequence of interview refusal or other reason), using a weighting class adjustment approach. This procedure effectively distributes the sample weight of nonrespondents to respondents within the same classification of individuals; such weighting classes are defined on the basis of available variables thought to be related to major study outcomes of interest. Finally, weights were trimmed to allow minimum mean-square-error estimates. All weight computations and adjustments were verified for accuracy of specification and computation, and included on the final data file. (The details of weighting and weight adjustments are covered in the Methodology Report.)

E. Generalized Standard Error Computation

The CS/CPB-specified analyses were conducted using specialized software (SESUDAAN) that allows for appropriate generation of ratio estimators (means, proportions) and their associated standard errors, for complex multi-stage samples selected with equal or unequal probabilities. From these analyses, generalized standard errors were developed for each of the four age groups. (See Appendix C.)

F. Additional Technical Documentation

The following publications provide complete detail and technical documentation pertaining to the HITS survey design or methodology:

1. Burkheimer, G. J., Levinsohn, J. R., and Whelan, J. L. Data Base Design for the Household Technology Study: HTS-85. Research Triangle Park, NC: Research Triangle Institute, August 1985.

2. Burkheimer, G. J. and Wheeless, S. C., Home Information Technology Study (HITS-85): Tabulations and Generalized Standard Errors. Research Triangle Park, NC: Research Triangle Institute, February 1986.

3. Burkheimer, G. J., Levinsohn, J. R., and Wheeless, S. C. Home Information Technology Study (HITS-85): Final Methodology Report (Report No. RTI/3162/08-02F). Research Triangle Park, NC: Research Triangle Institute, February 26, 1986.

4. Wheeless, S. C. HTS-85 Sampling Plan (Augmentation) (RTI/3162/04-03W). Research Triangle Park, NC: Research Triangle Institute, March 1985.

G. Generalization to the National Population

Considerable survey research suggests that the demographic characteristics of telephone interview respondents are much like those of in-person respondents, except that elderly and low-income subpopulations tend to be underrepresented. To the extent that underrepresentation of these subpopulations would not have dramatically affected results, the sample still provides a good representation of households nationally; and the telephone survey approach represented a much more cost-effective alternative for collecting the desired survey data. Specific inferences for the elderly and low-income subpopulations should be made with caution, however. (For further detail, see the Methodology Report to this study.)

Appendix C

Reliability of Estimates

The statistics provided in this summary report are estimates derived from a sample survey. Two types of errors, sampling and nonsampling, are possible in such estimates; and the joint effects of these errors determine the accuracy of a survey result. Nonsampling errors can be attributed to many sources:

- o inability to obtain information about all cases in the sample;
- o definitional difficulties;
- o differences in the interpretation of questions;
- o respondents' inability or unwillingness to provide correct information;
- o mistakes in recording or coding data; and
- o other errors of collection, response, processing, coverage, and estimation for missing data.

Nonsampling errors also occur in a census survey.

Because the estimates reported are based on a probability sample of the population rather than the entire population, they are subject to sampling variability. The particular sample used in this survey is one of a large number of possible samples that could have been selected using the same sample design. Estimates derived from the different possible samples would differ from each other. The standard error of a survey estimate is a measure of the reliability of the estimate. More specifically, it is a measure of the variation among the estimates from all possible surveys. Thus, the standard error is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples.

Generalized Standard Errors

Computation of standard error estimates for every statistic produced for this study was not planned. Rather, a method of approximating the standard errors for estimates of percentages was implemented. This method is based on the concept of a mean design effect, which was determined from error variance estimates from the CPB-specified tabulations. Four generalized standard error tables were produced, one for each of the four study-defined age group samples. These generalized standard errors can be used for approximating the standard error of other weighted estimates of percentages computed for the study. The procedures used to produce the generalized standard error tables are comparable to those used for the generalized standard error tables previously produced for CPB under prior contracts.

The data collected for this study were obtained through multi-stage samples. Such samples permit efficient data collection but generally inflate the variance of the survey estimates that would be obtained from a simple random sample (SRS) of the same size. The design effect for a statistic is the ratio of the variance of the statistic under the actual sample design to the variance that would be obtained from an SRS of the same size. When estimating a percentage for some subgroup-d, say P_d, the SRS variance would be $P_d(100 - P_d)/n_d$, where n_d is the sample size from subgroup-d.

The design effect $D(\cdot)$, for an estimate of P_d, say $\hat{P}_d$, is then given by

$$D(\hat{P}_d)=V(\hat{P}_d)/[\hat{P}_d(100-\hat{P}_d)/n_d], \qquad (1)$$

where $V(\hat{P}_d)$ is the variance of $\hat{P}_d$ calculated for the actual sample design.

If the design effect is fairly constant for a set of statistics, then the average design effect can be used generally to approximate the variance of other

statistics of the same nature. Explicitly, this approximation for an estimated percent is

$$V(\hat{P}_d) = \bar{D}\,[\hat{P}_d(100 - \hat{P}_d)/n_d], \qquad (2)$$

where $\bar{D}$ is the average design effect. Since CPB indicated that column percentages were of greatest interest in this study, the computed standard errors of column percentages were used for determining $\bar{D}$.

A weighted average design effect was used, where each design effect was weighted by the population estimate for the subgroup it represents. That is, for purposes of this study, $\bar{D}$ was defined as

$$\bar{D} = \sum_{d=1}^{K} \hat{Y}_d\, D(\hat{P}_d) \Big/ \sum_{d=1}^{K} \hat{Y}_d, \qquad (3)$$

where $\hat{Y}_d$ is the estimated population total for subgroup-d and K is the number of estimates over which the design effects were averaged. This strategy for variance estimation was suggested by Kish and Frankel and is also described by Cox and Cohen. (See Methodology Report.)

Estimates of $\bar{D}$ were produced from the CPB-specified tabulations. For the column percentage estimates, the overall average estimated design effect for 2 to 5 year olds, 6 to 11 year olds, 12 to 17 year olds, and adults were approximately 1.71, 1.53, 1.40, and 1.50, respectively. Using the appropriate average design effects, generalized standard error tables were computed for each age group, for specific values of P_d and n_d. Entries in the tables were calculated using the formula

$$SE(\hat{P}_d) = [\bar{D}P_d(100-P_d)n_d]^{1/2} \qquad (4)$$

where $SE(\hat{P}_d)$ is the approximate standard error of an estimated percentage $\hat{P}_d$.

Tables of generalized standard errors for HITS estimates presented in this report appear in Tables C.1, C.2, C.3, and C.4, for 2-5 year olds, 6-11 year olds, 12-17 year olds, and adults, respectively. These tables give approximate standard errors as a joint function of the estimated percentage (given as column headings) and the total sample size on which the percentage is based (given as row headings). For example, the generalized standard error (from Table C.1) for an estimate of 20 percent of an analysis group composed of 300 2-5 year olds is given as 3.02 percentage points. The actual sample sizes on which the reported percentages are based are given in tables in the text.

In many cases, the reported percentage, the sample size on which the percentage is based, or both, will fall within the intervals established in the generalized standard error tables (e.g., 23 percent, or a sample size of 225). For most purposes, it will be sufficient in such cases simply to "eyeball" the appropriate table and estimate the standard error to the nearest whole percent. If more precise standard errors are required, however, such cases will require the investigator to interpolate. (See Methodology Report.)

The sample estimate together with an estimate of its standard error would permit the construction of interval estimates such that, with a prescribed confidence, the interval includes the average result of all possible samples selected and surveyed under essentially the same conditions. With these interval estimates:

- In approximately two-thirds of the possible samples, intervals from one standard error below the estimate to one standard error above the estimate would include the average value of all possible samples. Such an interval is called a "67-percent confidence interval."

- Approximately 19/20 of the possible sample intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible values. Such an interval is called a "95-percent confidence interval."
- For almost all of the possible samples, the interval from three standard errors below the estimate to three standard errors above the estimate would include the average value of all possible samples.

In general, estimates for small subgroups tend to be relatively unreliable. However, the magnitude of the sampling error that is tolerable depends upon the conclusions being drawn. The reader should be aware that some estimates in this report may have relatively large standard errors. Statistics with such standard errors are generally viewed as not precisely estimated and should be interpreted cautiously.

Confidence intervals can also be constructed (or statistical tests performed) for differences in percentages. Given the standard error for a percentage in group A, $\sigma(P_A)$, and that for an analogous percentage in Group B, $\sigma(P_B)$, a typically conservative standard error for the difference, $P_A - P_B$, is given by

$$\sigma(P_A - P_B) = \sqrt{\{\sigma(P_A)\}^2 + \{\sigma(P_B)\}^2}$$

If the 95 percent confidence interval--the interval defined by $(P_A - P_B) \pm 2\sigma(P_A - P_B)$--does not include zero, then the difference may be taken as a real one at the .05 level of statistical significance.

C.5

Table C.1

Generalized Standard Errors for 2-to-5-Year-Olds

Sample Size	Percentage[a/] 1 99	5 95	10 90	20 80	25 75	30 70	35 65	40 60	45 55	50 50
2300	.271	.594	.818	1.091	1.181	1.250	1.301	1.336	1.357	1.364
2000	.291	.637	.877	1.170	1.266	1.340	1.395	1.433	1.455	1.462
1700	.316	.691	.952	1.269	1.374	1.454	1.513	1.554	1.578	1.586
1400	.348	.762	1.049	1.398	1.514	1.602	1.667	1.712	1.739	1.748
1100	.392	.859	1.183	1.577	1.707	1.807	1.881	1.932	1.962	1.972
800	.460	1.008	1.387	1.850	2.002	2.119	2.205	2.265	2.300	2.312
500	.582	1.275	1.755	2.340	2.533	2.680	2.790	2.865	2.910	2.924
300	.751	1.646	2.265	3.020	3.270	3.460	3.602	3.699	3.756	3.755
250	.823	1.803	2.481	3.309	3.582	3.790	3.945	4.052	4.473	4.136
200	.920	2.016	2.774	3.699	4.004	4.238	4.411	4.530	4.601	4.624
150	1.062	2.327	3.204	4.271	4.624	4.893	5.093	5.231	5.312	5.339
100	1.301	2.850	3.924	5.231	5.663	5.993	6.238	6.407	6.506	6.539
75	1.503	3.291	4.530	6.041	6.539	6.920	7.203	7.398	7.513	7.551
50	1.840	4.031	5.549	8.009	8.009	8.476	8.822	9.061	9.201	9.248

NOTE: Based on Average Design Effect of 1.71044.

[a/] Standard errors are identical for two percentages that are symmetric about 50 percent; thus, paired symmetric percentages are provided.

Table C.2

Generalized Standard Errors for 6-to-11-Year-Olds

Sample Size	Percentage[a/]									
	1 99	5 95	10 90	20 80	25 75	30 70	35 65	40 60	45 55	50 50
1100	.371	.813	1.119	1.493	1.616	1.710	1.780	1.828	1.856	1.866
1000	.389	.853	1.174	1.565	1.695	1.793	1.867	1.917	1.947	1.957
900	.410	.899	1.238	1.650	1.786	1.890	1.968	2.021	2.052	2.063
800	.435	.954	1.313	1.750	1.895	2.005	2.087	2.144	2.177	2.188
700	.465	1.019	1.403	1.871	2.025	2.144	2.231	2.292	2.327	2.339
600	.503	1.101	1.516	2.021	2.188	2.315	2.410	2.475	2.514	2.526
500	.551	1.206	1.660	2.214	2.397	2.536	2.640	2.711	2.753	2.767
400	.616	1.349	1.856	2.475	2.679	2.836	2.951	3.031	3.078	3.094
300	.711	1.557	2.144	2.858	3.094	3.274	3.408	3.500	3.555	3.573
250	.779	1.706	2.348	3.131	3.389	3.587	3.733	3.834	3.894	3.914
200	.871	1.907	2.625	3.500	3.789	4.010	4.174	4.287	4.354	4.375
150	1.005	2.202	3.031	4.042	4.375	4.631	4.820	4.950	5.027	5.052
100	1.231	2.697	3.713	4.950	5.359	5.671	5.903	6.063	6.157	6.188
75	1.422	3.115	4.287	5.716	6.188	6.549	6.816	7.001	7.109	7.145
50	1.660	3.814	5.251	7.001	7.579	8.020	8.348	8.574	8.707	8.751

NOTE: Based on Average Design Effect of 1.5316.

[a/] Standard errors are identical for two percentages that are symmetric about 50 percent; thus, paired symmetric percentages are provided.

Table C.3

Generalized Standard Errors for 12-to-17-Year-Olds

Sample Size	Percentage[a/] 1 99	5 95	10 90	20 80	25 75	30 70	35 65	40 60	45 55	50 50
550	.501	1.098	1.512	2.016	2.182	2.309	2.404	2.469	2.507	2.520
500	.526	1.152	1.586	2.114	2.289	2.422	2.521	2.589	2.629	2.643
450	.554	1.214	1.671	2.228	2.412	2.553	2.657	2.729	2.772	2.786
400	.588	1.288	1.773	2.364	2.559	2.708	2.818	2.895	2.940	2.955
350	.629	1.377	1.895	2.527	2.735	2.895	3.013	3.095	3.143	3.159
300	.679	1.487	2.047	2.729	2.955	3.127	3.254	3.343	3.395	3.412
250	.744	1.629	2.242	2.990	3.237	3.425	3.565	3.662	3.719	3.737
200	.831	1.821	2.507	3.343	3.619	3.830	3.986	4.094	4.157	4.178
150	.960	2.103	2.895	3.860	4.178	4.422	4.603	4.727	4.801	4.825
100	1.176	2.576	3.545	4.727	5.117	5.416	5.637	5.790	5.879	5.909
75	1.358	2.974	4.094	5.459	5.909	6.254	6.509	6.685	6.789	6.823
50	1.663	3.643	5.014	6.685	7.237	7.659	7.972	8.188	8.315	8.357

NOTE: Based on Average Design Effect of 1.3967.

[a/] Standard errors are identical for two percentages that are symmetric about 50 percent; thus, paired symmetric percentages are provided.

Table C.4

Generalized Standard Errors for Adults (18-Years-Old or Older)

Sample Size	Percentage[a/]									
	1 99	5 95	10 90	20 80	25 75	30 70	35 65	40 60	45 55	50 50
1700	.296	.647	.891	1.188	1.286	1.361	1.417	1.455	1.478	1.485
1500	.315	.689	.949	1.265	1.369	1.449	1.508	1.549	1.573	1.581
1300	.338	.740	1.019	1.359	1.471	1.557	1.620	1.664	1.690	1.698
1100	.367	.805	1.108	1.477	1.599	1.692	1.761	1.809	1.837	1.846
900	.406	.890	1.225	1.633	1.768	1.871	1.947	2.000	2.031	2.041
700	.461	1.009	1.389	1.852	2.004	2.121	2.208	2.268	2.303	2.314
500	.545	1.194	1.643	2.191	2.372	2.510	2.612	2.683	2.725	2.738
300	.704	1.541	2.121	2.828	3.062	3.240	3.373	3.464	3.518	3.535
250	.773	1.688	2.324	3.098	3.354	3.549	3.694	3.795	3.853	3.873
200	.862	1.887	2.598	3.464	3.750	3.968	4.130	4.242	4.308	4.330
150	.995	2.179	3.000	3.266	4.330	4.582	4.769	4.899	4.975	5.000
100	1.219	2.669	3.674	4.899	5.303	5.612	5.841	6.000	6.093	6.123
75	1.407	3.082	4.242	5.657	6.123	6.480	6.745	6.928	7.035	7.071
50	1.723	3.775	5.196	6.928	7.500	7.937	8.261	8.485	8.616	8.660

NOTE: Based on Average Design Effect of 1.49984.

[a/] Standard errors are identical for two percentages that are symmetric about 50 percent; thus, paired symmetric percentages are provided.

Appendix D

Tables

D.

Table 1

Percentage of Persons with Various Information Technologies Available By Age Group[a]

Technology in Household	Age Group: Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Pre-Schoolers (Age 2-5)
Television Set	99%	99%	99%	99%
Cable Television	48	51	53	53
Videocassette Recorder	29	35	34	33
Personal/Home Computer	13	26	22	17
Record Player/Stereo	87	93	91	89
Audiocassette/Tape Player	82	94	91	86
Number of Sample Cases	1752	564	1141	2316

[a] Analyses based on all sample members.

Table 2

Percentage of Adults with Various Information Technologies Available By Family Income Level[a]

Technology in Household	Total	Family Income Level			
		Less Than $10,000	$10,000-20,000	$20,000-40,000	More Than $40,000
Television Set	99%	99%	98%	99%	99%
Cable Television	48	31	47	52	55
Videocassette Recorder	29	15	21	26	51
Personal/Home Computer	13	3	7	12	26
Record Player/Stereo	87	69	87	89	93
Audiocassette/Tape Player	82	61	80	84	92
Number of Sample Cases	1491	197	352	596	346

[a] Analyses based on all adult sample members.

Table 3

Percentage of Young Children with Various Information Technologies Available By Age Group and Number of Parents in Household[a]

Technology/ Resource in Household	2-5 yr. olds			6-11 yr. olds		
	Total	Single-Parent Household	Two-Parent Household	Total	Single-Parent Household	Two-Parent Household
Television Set	99%	99%	99%	99%	98%	99%
Cable Television	53	50	54	53	55	52
Videocassette Recorder	33	18	35	34	21	37
Personal/Home Computer	17	10	18	22	12	25
Record Player/ Stereo	89	81	91	91	87	92
Audiocassette/ Tape Player	86	77	87	91	92	90
Number of Cases	2205	333	1872	1099	194	905

[a] Analyses based on all sample members.

Table 4

Percentage Distribution of Brands of Computers[a] in Households By Age Group

Type (Brand) of Personal Computer	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Pre-Schoolers (Age 2-5)
Apple	18%	15%	13%	11%
Atari	4	9	12	8
Commodore	33	40	28	37
IBM	10	5	10	7
Radio Shack	7	10	8	8
Texas Instruments	16	15	22	17
Timex/Sinclair	3	1	1	3
Other	9	5	6	9
Number of Cases	212	145	247	369

[a] Analyses restricted to sample members in households with computers available.

Table 5

Percentage of Persons in Computer-Owning Households with Various Computer Peripherals Available By Age Group[a]

Computer Peripheral	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Pre-Schoolers (Age 2-5)
Printer	55%	41%	36%	42%
Disk Drive(s)	66	58	50	56
Monitor (other than TV screen)	48	43	41	39
Modem	14	13	13	19
None of the Above	24	32	38	32
Number of Sample Cases	215	145	250	372

[a] Analyses restricted to sample members in households with computers available.

Table 6

Percentage of Persons in Computer-Owning Households with Various Educational Software Available By Age Group[a]

Educational Software Available	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Pre-Schoolers (Age 2-5)
Spelling	30%	32%	53%	49%
Math	48	51	72	59
Educational Games	38	40	41	40
Reading	32	29	41	45
Computer Basics	63	67	62	62
Graphics	41	40	43	44
Other Educational Software	22	22	19	15
None	22	18	11	12
Number of Sample Cases	215	142	250	393

[a] Analyses restricted to sample members in households with computers available.

Table 7

Percentage Distribution of Hours[a] Spent Using Computer
By Age Group

Typical Number of Hours Per Week Using Computer	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Pre-Schoolers (Age 2-5)
None	40%	20%	16%	39%
Less than 1 hour	11	11	16	13
1-5 hours	32	47	50	41
6-10 hours	6	15	13	4
11-15 hours	6	4	1	2
16-20 hours	1	2	3	0
More than 20 hours	4	1	1	1
Number of Sample Cases	218	147	257	393

[a] Analyses restricted to sample members in households with computers.

Table 8

Percentage Distribution of Hours Spent Using Computer
By Age Group and Sex[a]

Number of Hours Per Week Using Computers	Adults (18 Yrs. and Older)		Teens (Age 12-17)		Youths (Age 6-11)		Preschoolers (Age 2-5)	
	Males	Females	Males	Females	Males	Females	Males	Females
None	27%	55%	14%	34%	10%	22%	29%	50%
Less than 1 hour	15	7	11	12	16	16	18	9
1-5 hours	38	24	48	45	50	49	45	37
6 hours or more	20	14	27	10	24	12	9	4
Number of Sample Cases	107	111	94	53	132	125	204	189

[a] Analyses restricted to sample members in households with computers.

Table 9

Percentage of Persons Using the Personal/Home Computer for Various Purposes By Age Group[a]

Use of Computer	Age Group		
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)
Entertainment	38%	75%	78%
Student Class Assignments	31	52	33
Job/Business Related Tasks	51	NA	NA
Household Recordkeeping	48	NA	NA
Word Processing	53	40	23
Learning About Computers	63	74	65
Original Programming	60	69	41
Other Uses	13	28	24
Number of Sample Cases	126	118	219

[a] Analyses restricted to sample members who used computers. Question was not included in the 2-5 year old interview.

Table 10

Percentage of Adults Reporting Extent of Actual Family Use of Personal/Home Computers Compared to Anticipated Use Prior to Purchasing Equipment[a]

Type of Computer Use	Actual Compared to Anticipated Use		
	More	About the Same	Less
Overall Use	25%	32%	43%
Educational	23	33	44
Personal/Family Finances	14	26	60
Word Processing	22	25	53
Games or Entertainment	22	25	53

[a] Analyses restricted to adult sample members in households with computers. (Number of Sample Cases=214)

Table 11

Percentage of 2-5 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning[a]

Type of Technology/ Resource Used	Total	Type of Learning	
		Practical/ Recreational	Intellectual
Books/Magazines	83% (2226)	70% (631)	89% (1595)
TV Programs	76 (2226)	72 (631)	77 (1595)
Videocassettes	28 (730)	37 (197)	25 (533)
Records	48 (1992)	43 (566)	50 (1426)
Radio Programs	10 (2226)	10 (631)	9 (1595)
Audiocassettes	26 (1910)	21 (547)	27 (1363)
Computers	40 (380)	42 (107)	40 (273)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 12

Percentage of 6-11 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning[a]

Type of Technology/ Resource Used	Total	Type of Learning	
		Practical/ Recreational	Intellectual
Books/Magazines	77% (1070)	55% (398)	90% (672)
TV Programs	66 (1070)	61 (398)	69 (672)
Videocassettes	24 (372)	20 (138)	26 (234)
Records	34 (975)	20 (370)	42 (605)
Radio Programs	14 (1070)	14 (398)	14 (672)
Audiocassettes	19 (965)	12 (361)	23 (604)
Computers	37 (241)	18 (87)	48 (154)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 13

Percentage of 12-17 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning[a]

Type of Technology/ Resource Used	Total	Type of Learning	
		Practical/ Recreational	Intellectual
Books/Magazines	77% (548)	67% (256)	85% (292)
TV Programs	55 (548)	55 (256)	55 (292)
Videocassettes	24 (198)	26 (80)	22 (118)
Records	18 (510)	15 (243)	20 (267)
Radio Programs	18 (548)	17 (256)	20 (292)
Audiocassettes	13 (514)	10 (241)	16 (273)
Computers	37 (142)	15 (55)	52 (87)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 14

Percentage of Adults Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Type of Learning[a]

Type of Technology/ Resource Used	Total	Type of Learning	
		Practical/ Recreational	Intellectual
Books/Magazines	81% (1519)	74% (592)	86% (927)
TV Programs	41 (1519)	33 (592)	46 (927)
Videocassettes	17 (448)	10 (169)	21 (279)
Records	12 (1321)	10 (527)	14 (794)
Radio Programs	20 (1519)	12 (592)	26 (927)
Audiocassettes	15 (1263)	10 (505)	19 (758)
Computers	26 (205)	12 (60)	32 (145)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 15
Percentage Distribution of Most Important Learning Activities
Among 2-5 Year Olds By Type and Mix of Technology/Resources Used

Most Important Learning Activity	Total[a]	Type of Technology/Resources Used[b]						
		No Print or Technology	Print Only	Electronic Only	Print and Audio	Print and Video	Print, Audio, and Video	Print, Audio, Video, and Computers
Practical/Recreational:								
Sports/Motor Skills	6%	26%	4%	16%	*	2%	3%	6%
Games	1	*	1	3	2	*	1	2
Social Skills	14	16	9	14	5	16	15	18
Art	2	1	9	2	1	3	1	1
Music	1	1	*	8	2	*	1	2
Dance/Theatre	1	1	*	2	2	*	*	*
Household Chores	2	6	2	1	1	2	1	*
Camping/Outdoor Survival	1	4	*	2	*	1	*	*
Other	*	2	1	*	*	*	*	*
Total Practical/Recreational	28	57	27	48	13	25	22	29
Intellectual:								
Science	1	1	*	*	*	1	*	*
Reading	25	2	19	8	29	24	30	42
Writing	8	2	19	5	3	11	8	7
Foreign Language	*	1	*	1	*	*	1	*
Social Relationships	8	10	7	12	8	7	9	8
Speech	6	6	6	3	2	5	9	5
Health/Hygiene/Safety	2	2	5	3	4	3	2	*
Geography/Local Directions	1	4	*	*	*	1	*	*
Animals/Nature Study	2	1	*	1	*	6	2	1
Math	5	4	2	6	2	8	4	3
Poetry/Nursery Rhymes	1	*	*	1	2	1	2	*
Religion	5	5	11	3	33	2	5	*
Careers (Awareness)	*	1	*	*	*	*	*	*
Family Relationships	3	4	1	3	2	4	3	1
Sex Education	*	*	*	3	*	*	*	*
Computers	1	*	*	3	*	*	*	1
Other	2	*	2	1	2	1	3	2
Total Intellectual	72	43	73	52	87	75	78	71
Number of Sample Cases	2229	157	184	206	104	486	756	229

[a] Analysis based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

* Indicates a positive percentage less than 0.5.

Table 16
Percentage Distribution of Most Important Learning Activities
Among 6-11 Year Olds By Type and Mix of Technology/Resources Used

Most Important Learning Activity	Total[a]	Type of Technology/Resources Used[b]					
		No Print or Technology	Print Only	Audio and/or Video	Print and Video	Print, Audio, and Video	Computers With/Without Other Resources
Practical/Recreational:							
Sports/Motor Skills	18%	40%	7%	46%	24%	6%	14%
Games	2	4	1	1	*	1	2
Crafts	1	2	3	1	*	*	2
Art	5	4	6	4	8	1	6
Music	4	8	6	3	*	4	2
Dance/Theatre	2	1	*	11	*	2	*
Household Chores	3	8	3	*	2	3	2
Camping/Outdoor Survival	2	5	6	7	1	*	*
Business/Jobs	*	1	*	*	*	*	*
Other	1	1	2	*	1	1	*
Total Practical/Recreational	37	74	34	73	37	18	28
Intellectual:							
Science	4	*	6	*	9	2	4
Reading	21	1	23	4	13	40	26
Writing	2	4	1	*	5	1	1
Foreign Language	*	1	*	*	*	*	*
Social Relationships	8	3	4	9	8	10	10
Health/Hygiene/Safety	1	1	1	*	3	1	1
History	1	*	*	*	2	1	2
Geography/Local Directions	1	*	*	*	1	*	1
Civics/Government	*	*	*	*	*	2	*
Animals/Nature Study	4	*	6	3	8	4	2
Math	3	5	6	1	3	1	5
Poetry/Nursery Rhymes	*	*	1	*	*	1	*
Religion	8	*	11	3	3	16	1
Careers (Exploration, Awareness)	*	2	*	2	*	*	*
Family Development/Relationships	2	4	1	2	2	1	1
Sex Education	1	*	3	2	2	*	*
Computers	4	2	1	*	*	*	16
Other	2	3	2	1	3	2	1
Total Intellectual	63	26	66	27	63	82	72
Number of Sample Cases	1099	108	134	106	204	215	268

[a] Analysis based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

* Indicates a positive percentage less than 0.5.

Table 17
Percentage Distribution of Most Important Learning Activities
Among 12-17 Year Olds By Type and Mix of Technology/Resources Used

Most Important Learning Activity	Total[a]	Type of Technology/Resources Used[b]	
		Print Only	Print and Video
Practical/Recreational:			
Sports/Motor Skills	19%	8%	23%
Games	*	*	*
Crafts	1	4	*
Art	2	5	5
Music	6	6	1
Dance/Theatre	3	*	2
Household Chores/Maintenance	4	8	2
Camping/Outdoor Survival	3	5	6
Business/Jobs/Personal Finance	3	6	1
Child Care	1	1	1
Driving a Car	3	7	2
First Aid/Lifesaving	1	3	1
Other	1	*	2
Total Practical/Recreational	47	55	45
Intellectual:			
Science	3	4	6
Reading	6	6	6
Writing	1	3	1
Foreign Language	1	*	1
Social Relationships	7	4	10
Health/Hygiene/Safety	1	*	2
History	1	1	2
Geography	1	2	1
Civics/Government	1	1	1
Animals/Nature Study	2	2	3
Math	4	4	7
Poetry/Nursery Rhymes	1	2	*
Religion	5	8	2
Careers (Preparation, Exploration)	4	2	4
Family Development/Relationships	3	1	2
Sex Education	1	*	3
Computers	11	4	1
Other	2	1	3
Total Intellectual	53	45	55
Number of Sample Cases	548	104	109

[a] Analysis based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

* Indicates a positive percentage less than 0.5.

Table 18
Percentage Distribution of Most Important Learning Activities Among Adults By Type and Mix of Technology/Resources Used

Most Important Learning Activity	Total[a]	Type of Technology/Resources Used[b]			
		No Print or Technology	Print Only	Print and Video	Print, Audio, and Video
Practical/Recreational:					
Sports/Motor Skills	8%	13%	7%	12%	6%
Games	1	2	1	*	1
Crafts	5	11	9	2	*
Art	1	*	2	1	2
Music	2	1	*	*	3
Dance/Theatre	*	*	*	*	1
Household Chores/Maintenance	6	7	10	6	3
Camping/Outdoor Survival	2	3	3	2	2
Business/Jobs/Personal Finance	6	9	5	4	3
Child Care	4	5	5	7	5
Driving a Car	1	5	*	*	*
First Aid/Lifesaving	1	*	2	1	*
Other	2	3	4	2	*
Total Practical/Recreational	40	59	50	37	25
Intellectual:					
Science	3	*	3	3	4
Reading	6	2	9	5	8
Writing	1	*	2	2	1
Foreign Language	1	*	*	1	1
Social Relationships	4	7	2	5	3
Health/Hygiene/Safety	6	4	5	13	9
History	2	*	*	3	6
Geography	*	*	*	1	*
Civics/Government	2	*	*	4	4
Animals/Nature Study	2	1	3	4	2
Math	2	3	1	1	*
Poetry/Nursery Rhymes	*	1	*	*	*
Religion	11	4	5	8	25
Careers (Preparation, Exploration)	6	7	6	5	3
Family Development/Relationships	4	3	2	6	5
Computers	8	6	5	1	1
Other	3	2	5	2	4
Total Intellectual	60	41	50	63	75
Number of Sample Cases	1519	204	456	252	279

[a] Analysis based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

* Indicates a positive percentage less than 0.5.

Table 19

Percentage of 2-5 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Learning Style Preferences[a]

Type of Technology/ Resource Used	Total	Prefer Individual to Group Learning		Prefer People Over Books as Information Source		Prefer Setting Learning Pace to Having Pace Set By Others	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
Books/Magazines	83% (2180)	80% (575)	85% (1605)	78% (724)	86% (1410)	83% (1556)	83% (623)
TV Programs	76 (2179)	73 (575)	77 (1604)	75 (722)	77 (1411)	75 (1555)	77 (623)
Videocassettes	28 (716)	22 (174)	31 (542)	29 (229)	29 (461)	28 (514)	29 (203)
Records	48 (1950)	45 (514)	49 (1436)	46 (630)	50 (1279)	47 (1389)	51 (561)
Radio Programs	10 (2181)	11 (576)	9 (1605)	12 (724)	9 (1411)	10 (1557)	8 (623)
Audiocassettes	26 (1871)	25 (479)	26 (1392)	29 (623)	24 (1204)	26 (1328)	25 (539)
Computer Games/ Programs	40 (375)	46 (90)	39 (285)	42 (137)	40 (229)	44 (288)	31 (84)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 20

Percentage of 6-11 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Learning Style Preferences[a]

Type of Technology/ Resource Used	Total	Prefer Individual to Group Learning		Prefer People Over Books as Information Source		Prefer Setting Learning Pace to Having Pace Set By Others	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
Books/Magazines	77% (1080)	79% (425)	75% (655)	70% (648)	85% (428)	78% (905)	72% (178)
TV Programs	66 (1080)	70 (425)	64 (655)	65 (648)	67 (428)	66 (904)	63 (178)
Videocassettes	24 (371)	29 (160)	20 (211)	25 (232)	23 (144)	25 (315)	23 (63)
Records	34 (984)	32 (381)	34 (603)	32 (581)	36 (398)	34 (825)	33 (163)
Radio Programs	14 (1080)	15 (425)	13 (655)	13 (647)	16 (428)	13 (905)	17 (177)
Audiocassettes	19 (976)	17 (380)	20 (596)	17 (588)	21 (381)	19 (820)	18 (158)
Computer Games/ Programs	37 (248)	41 (104)	33 (144)	38 (152)	33 (96)	37 (211)	33 (38)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 21

Percentage of 12-17 Year Olds Employing Various Information Technologies/Resources in Their Most Important Learning Activity By Learning Style Preferences[a]

Type of Technology/ Resource Used	Total	Prefer Individual to Group Learning		Prefer People Over Books as Information Source		Prefer Setting Learning Pace to Having Pace Set By Others	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
Books/Magazines	77%	81%	73%	72%	86%	77%	79%
	(535)	(274)	(261)	(310)	(217)	(457)	(78)
TV Programs	54	50	58	49	59	53	59
	(535)	(274)	(261)	(310)	(217)	(458)	(78)
Videocassettes	24	26	21	22	27	21	33
	(195)	(101)	(94)	(113)	(79)	(157)	(32)
Records	18	17	19	15	23	18	19
	(499)	(253)	(246)	(296)	(195)	(435)	(68)
Radio Programs	18	19	17	17	20	18	21
	(533)	(273)	(260)	(307)	(217)	(455)	(78)
Audiocassettes	13	12	14	13	13	12	19
	(504)	(254)	(250)	(293)	(200)	(428)	(75)
Computer Games/	37	42	36	35	45	40	28
	(137)	(67)	(70)	(78)	(55)	(117)	(21)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 22

Percentage of Adults Employing Various Information Technologies/Resources in Their Most Important[a] Learning Activity By Learning Style Preferences

Type of Technology/ Resource Used	Total	Prefer Individual to Group Learning		Prefer People Over Books as Information Source		Prefer Setting Learning Pace to Having Pace Set By Others	
		Agree	Disagree	Agree	Disagree	Agree	Disagree
Books/Magazines	81% (1484)	77% (731)	85% (753)	75% (679)	87% (773)	82% (1212)	76% (276)
TV Programs	41 (1484)	39 (731)	41 (753)	39 (679)	42 (773)	41 (1212)	40 (276)
Videocassettes	17 (442)	19 (209)	14 (233)	17 (208)	17 (226)	17 (363)	15 (82)
Records	12 (1294)	10 (634)	13 (660)	10 (584)	12 (686)	11 (1060)	14 (239)
Radio Programs	20 (1482)	18 (731)	21 (751)	20 (677)	19 (773)	19 (1212)	23 (274)
Audiocassettes	16 (1238)	12 (592)	18 (646)	14 (553)	16 (660)	15 (1001)	15 (239)
Computer Games/ Programs	26 (200)	33 (106)	20 (94)	30 (82)	24 (119)	27 (168)	21 (35)

[a] Analyses restricted to sample members in households with appropriate technology available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 23
Percentage of Persons Who Were Aware of Specific Materials That Were or Could Have Been Helpful in Learning Activity By Age Group[a]

Type of Learning Material/Resource	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Pre-Schoolers (Age 2-5)
Print	87% (1519)	83% (548)	82% (1125)	88% (2226)
Video	57 (1519)	66 (548)	74 (1125)	86 (2226)
Audio	43 (1519)	36 (548)	51 (1125)	65 (2226)
Computers	36 (205)	47 (141)	48 (252)	58 (380)

[a] Analyses based on sample members with appropriate technology/resources available who reported some learning during the past year.

NOTE: Numbers in parentheses represent number of sample cases.

Table 24

Percentage of Learners Who Were Aware of Potentially Helpful Program Materials/Resources That Used Them in Their Most Important Learning By Age Group[a]

Type of Learning Resource Used	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Preschoolers (Age 2-5)
Print	94% (1307)	93% (452)	94% (902)	94% (1967)
Video	80% (842)	85% (360)	91% (805)	91% (1898)
Audio	75% (630)	81% (197)	84% (550)	83% (1429)
Computers	73% (67)	81% (64)	76% (118)	70% (221)

[a] Analyses restricted to sample members with appropriate technology/resources available and who indicated awareness of specified technology/resource that could have been helpful in learning activity.

NOTE: Numbers in parentheses represent number of sample cases.

Table 25

Percentage of Persons Who Did Not Use Various Information Technologies/Resources in Their Most Important Learning That Indicated They Were Unaware of Any Potentially Helpful Program Material/Resources By Age Group[a]

Type of Learning Material/Resource	Age Group			
	Adults (18 Yrs. and Older)	Teens (Age 12-17)	Youths (Age 6-11)	Preschoolers (Age 2-5)
Print	72% (289)	76% (124)	78% (256)	71% (361)
Video	79% (846)	78% (241)	80% (363)	64% (503)
Audio	84% (1042)	90% (388)	86% (637)	76% (1036)
Computers	87% (157)	86% (89)	82% (164)	71% (224)

[a] Analyses restricted to sample members with appropriate technology/resources available but who did not use particular technology in their learning activity.

NOTE: Numbers in parentheses represent number of sample cases.

Table 26

Percentage of 2-5 Year Olds Involving Others
In Most Important Learning Activity
By Type of Learning and Use/Nonuse of Technology[a]

Involvement of Others	Total	Type of Learning: Practical/Recreational		Type of Learning: Intellectual	
		Technology Nonusers	Technology Users	Technology Nonusers	Technology Users
Received help from others in household	90%	80%	93%	87%	90%
Received help from others outside household	62	52	63	47	65
Household member(s) or friends learned along with person	58	48	73	39	56
Visited a library or bookmobile	47	23	48	27	52
Participated in a club, team, or organized group	20	21	25	14	18
Participated in formal classes with a teacher and others	30	22	29	31	31
Participated in individual lessons with an instructor only	10	10	9	8	11
Number of Cases	2226	138	492	203	1393

[a] Analyses based on all sample members reporting some learning during the past year.

Table 27

Percentage of 6-11 Year Olds Involving Others
In Most Important Learning Activity
By Type of Learning and Use/Nonuse of Technology[a]

Involvement of Others	Total	Type of Learning: Practical/Recreational, Technology Nonusers	Practical/Recreational, Technology Users	Intellectual, Technology Nonusers	Intellectual, Technology Users
Received help from others in household	84%	67%	82%	87%	88%
Received help from others outside household	75	73	75	64	79
Household member(s) or friends learned along with person	69	71	75	60	67
Visited a library or bookmobile	62	28	48	53	78
Participated in a club, team, or organized group	42	57	61	23	34
Participated in formal classes with a teacher and others	53	38	45	53	60
Participated in individual lessons with an instructor only	22	26	24	20	20
Number of Cases	1070	125	273	107	565

[a] Analyses based on all sample members reporting some learning during the past year.

Table 28

Percentage of 12-17 Year Olds Involving Others
In Most Important Learning Activity
By Type of Learning and Use/Nonuse of Technology[a]

Involvement of Others	Total	Type of Learning: Practical/Recreational, Technology Nonusers	Type of Learning: Practical/Recreational, Technology Users	Type of Learning: Intellectual, Technology Nonusers	Type of Learning: Intellectual, Technology Users
Received help from others in household	71%	68%	67%	71%	75%
Received help from others outside household	71	66	81	55	70
Household member(s) or friends learned along with person	65	60	77	52	64
Visited a library or bookmobile	55	25	60	42	69
Participated in a club, team, or organized group	46	42	63	33	38
Participated in formal classes with a teacher and others	54	44	52	56	59
Participated in individual lessons with an instructor only	26	19	31	35	22
Number of Cases	548	98	158	74	218

[a] Analyses based on all sample members reporting some learning during the past year.

Table 29

Percentage of Adults Involving Others
In Most Important Learning Activity
By Type of Learning and Use/Nonuse of Technology[a]

Involvement of Others	Total	Type of Learning: Practical/Recreational — Technology Nonusers	Practical/Recreational — Technology Users	Intellectual — Technology Nonusers	Intellectual — Technology Users
Received help from others in household	40%	37%	46%	35%	42%
Received help from others outside household	58	55	59	56	59
Household member(s) or friends learned along with person	51	52	60	36	54
Visited a library or bookmobile	43	28	46	40	51
Participated in a club, team, organized group					
without a leader	24	16	27	22	28
with a leader	39	27	43	37	45
Participated in formal classes with a teacher and others	45	33	44	49	50
Participated in individual lessons with an instructor only	21	17	29	19	22
Number of Cases	1519	336	256	324	603

[a] Analyses based on all sample members reporting some learning during the past year.

Table 30

Percentage of Persons Reporting Various Levels of Satisfaction with Learning By Age Group and Use/Nonuse of Technology[a]

Learner Group	Level of Satisfaction				No. of Sample Cases
	Very Satisfied	Somewhat Satisfied	Somewhat Dis-Satisfied	Very Dis-Satisfied	
Preschoolers (Age 2-5):					
Nonusers	72%	27%	1%	*	341
Users	71	27	2	*	1888
Youths (Age 6-11):					
Nonusers	61	35	4	*	242
Users	59	38	3	*	856
Teens (Age 12-17):					
Nonusers	52	45	1	2	171
Users	52	44	3	1	375
Adults (18 yrs. and older)					
Nonusers	56	40	4	*	652
Users	46	49	4	1	856

[a] Analyses based on all sample members reporting some learning during the past year.

* Represents a positive percentage less than 0.5.

Table 31

Percentage of Persons Reporting Things They Would Change
if They Were to Repeat Learning
By Age of Learner and Use/Nonuse of Technology[a]

Do Differently	Adults (18 Years and Older)			Teens (Age 12-17)			Youths (Age 6-11)			Preschoolers (Age 2-5)		
	Total	Technology Nonusers	Technology Users	Total	Technology Nonusers	Technology Users	Total	Technology Nonusers	Technology Users	Total	Technology Nonusers	Technology Users
Try to get more expert information	55%	47%	61%	55%	49%	58%	43%	41%	44%	25%	20%	26%
Practice more	66	59	71	68	66	68	66	60	67	44	40	45
Get more information before starting	55	50	60	55	57	53	46	40	47	39	31	40
Better feedback about progress along the way	63	58	66	70	68	70	62	57	63	61	54	62
Try not to learn too much too fast	46	44	48	49	49	49	42	37	44	33	27	34
Number of Sample Cases	1513	659	854	541	171	370	1089	241	848	2224	341	1883

[a] Analyses based on all sample members reporting some learning during the past year.

Table 32

Attitudes Toward Learning Resources
By Type of Learning: 2-5 Year Olds[a]

Perceived Helpfulness of Learning Resource	Total	Type of Learning: Practical/ Recreational	Type of Learning: Intellectual
Books/Magazines			
Very Helpful	68%	53%	75%
Somewhat Helpful	26	37	22
Not Helpful	6	10	3
TV Programs on a Regular Channel			
Very Helpful	40	36	41
Somewhat Helpful	35	33	36
Not Helpful	25	31	23
TV Programs on a Cable Channel			
Very Helpful	30	27	31
Somewhat Helpful	33	37	32
Not Helpful	37	36	37
Videocassettes			
Very Helpful	17	16	18
Somewhat Helpful	29	30	28
Not Helpful	54	54	54
Records			
Very Helpful	28	22	30
Somewhat Helpful	39	41	38
Not Helpful	33	37	32
Radio Programs			
Very Helpful	6	5	6
Somewhat Helpful	24	24	24
Not Helpful	70	71	70
Audiocassettes			
Very Helpful	20	16	22
Somewhat Helpful	28	28	29
Not Helpful	52	56	49
Computer Games or Programs			
Very Helpful	24	17	27
Somewhat Helpful	25	27	25
Not Helpful	51	56	48
Number of Sample Cases	2225	631	1594

[a] Analyses based on all sample members reporting some learning during the past year.

Table 33

Attitudes Toward Learning Resources
By Type of Learning: 6-11 Year Olds[a]

Perceived Helpfulness of Learning Resource	Total	Type of Learning: Practical/ Recreational	Type of Learning: Intellectual
Books/Magazines			
Very Helpful	56%	31%	72%
Somewhat Helpful	32	45	24
Not Helpful	12	24	4
TV Programs on a Regular Channel			
Very Helpful	30	26	32
Somewhat Helpful	39	43	37
Not Helpful	31	31	31
TV Programs on a Cable Channel			
Very Helpful	25	22	26
Somewhat Helpful	30	32	29
Not Helpful	45	46	45
Videocassettes			
Very Helpful	18	18	19
Somewhat Helpful	25	23	27
Not Helpful	57	59	54
Records			
Very Helpful	20	13	24
Somewhat Helpful	31	26	34
Not Helpful	49	61	42
Radio Programs			
Very Helpful	8	6	9
Somewhat Helpful	23	18	26
Not Helpful	69	76	65
Audiocassettes			
Very Helpful	14	10	17
Somewhat Helpful	28	22	31
Not Helpful	58	68	52
Computer Games or Programs			
Very Helpful	22	14	27
Somewhat Helpful	55	26	25
Not Helpful	53	60	48
Number of Sample Cases	1068	399	669

[a] Analyses based on all sample members reporting some learning during the past year.

Table 34

Attitudes Toward Learning Resources
By Type of Learning: 12-17 Year Olds[a]

Perceived Helpfulness of Learning Resource	Total	Type of Learning: Practical/ Recreational	Type of Learning: Intellectual
Books/Magazines			
Very Helpful	52%	41%	61%
Somewhat Helpful	37	44	31
Not Helpful	11	15	8
TV Programs on a Regular Channel			
Very Helpful	26	28	25
Somewhat Helpful	40	44	36
Not Helpful	34	28	39
TV Programs on a Cable Channel			
Very Helpful	26	25	27
Somewhat Helpful	28	33	23
Not Helpful	46	42	50
Videocassettes			
Very Helpful	20	22	18
Somewhat Helpful	24	27	21
Not Helpful	56	51	61
Records			
Very Helpful	14	14	14
Somewhat Helpful	23	23	23
Not Helpful	63	63	63
Radio Programs			
Very Helpful	12	12	12
Somewhat Helpful	25	26	25
Not Helpful	63	62	63
Audiocassettes			
Very Helpful	15	12	18
Somewhat Helpful	24	28	20
Not Helpful	61	60	62
Computer Games or Programs			
Very Helpful	23	13	31
Somewhat Helpful	24	27	21
Not Helpful	53	60	48
Number of Sample Cases	548	256	292

[a] Analyses based on all sample members reporting some learning during the past year.

Table 35

Attitudes Toward Learning Resources
By Type of Learning: 18 Year Olds and Older[a]

Perceived Helpfulness of Learning Resource	Total	Type of Learning: Practical/ Recreational	Type of Learning: Intellectual
Books/Magazines			
Very Helpful	62%	54%	68%
Somewhat Helpful	28	33	24
Not Helpful	10	13	8
TV Programs on a Regular Channel			
Very Helpful	23	20	25
Somewhat Helpful	33	32	34
Not Helpful	44	48	41
TV Programs on a Cable Channel			
Very Helpful	20	17	22
Somewhat Helpful	25	26	25
Not Helpful	55	57	53
Videocassettes			
Very Helpful	15	15	15
Somewhat Helpful	22	19	24
Not Helpful	63	66	61
Records			
Very Helpful	11	9	11
Somewhat Helpful	20	17	23
Not Helpful	69	74	66
Radio Programs			
Very Helpful	12	8	14
Somewhat Helpful	23	18	27
Not Helpful	65	74	59
Audiocassettes			
Very Helpful	14	11	16
Somewhat Helpful	21	17	24
Not Helpful	65	72	60
Computer Games or Programs			
Very Helpful	13	10	15
Somewhat Helpful	15	12	17
Not Helpful	72	78	68
Number of Sample Cases	1498	588	910

[a] Analyses based on all sample members reporting some learning during the past year.

Table 36
Attitudes Toward Learning Resources
By Type and Mix of Technology Used: 2-5 Year Olds

Perceived Helpfulness of Learning Resources	Total[a]	Type of Technology/Resources Used: No Print or Technology	Print Only	Electronic Only	Print and Audio	Print and Video	Print, Audio, and Video	Print, Audio, Video, and Computers
Books/Magazines								
Very Helpful	68%	18%	69%	46%	73%	73%	80%	75%
Somewhat Helpful	26	54	27	36	22	24	19	24
Not Helpful	6	28	4	18	5	3	1	1
TV Programs on a Regular Channel								
Very Helpful	40	13	14	41	9	46	49	48
Somewhat Helpful	35	40	36	33	33	33	36	32
Not Helpful	25	47	50	26	58	21	15	20
TV Programs on a Cable Channel								
Very Helpful	30	16	14	32	20	34	35	34
Somewhat Helpful	33	37	32	30	35	32	32	37
Not Helpful	37	47	54	38	45	34	33	29
Videocassettes								
Very Helpful	17	10	9	24	13	16	19	22
Somewhat Helpful	29	20	19	30	26	29	30	31
Not Helpful	54	70	72	46	61	55	51	47
Records								
Very Helpful	28	8	10	23	47	16	41	40
Somewhat Helpful	39	27	28	34	40	33	46	43
Not Helpful	33	65	62	43	13	51	13	17
Radio Programs								
Very Helpful	6	3	2	9	4	4	8	6
Somewhat Helpful	24	16	17	29	20	20	29	26
Not Helpful	70	81	81	62	76	76	63	68
Audiocassettes								
Very Helpful	20	4	5	20	32	10	28	33
Somewhat Helpful	28	18	23	27	22	25	32	39
Not Helpful	52	78	72	53	46	65	40	28
Computer Games or Programs								
Very Helpful	24	10	6	23	15	21	21	53
Somewhat Helpful	25	16	27	24	23	24	23	37
Not Helpful	51	74	67	53	62	55	56	10
Number of Sample Cases	2217	157	184	206	104	468	756	224

[a] Analyses based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

Table 37

Attitudes Toward Learning Resources
By Type and Mix of Technology Used: 6-11 Year Olds

Perceived Helpfulness of Learning Resources	Total[a]	Type of Technology/Resources Used: No Print or Technology	Print Only	Audio and/or Video	Print and Video	Print, Audio, and Video	Computers With/Without Other Resources
Books/Magazines							
Very Helpful	56%	17%	70%	26%	60%	75%	57%
Somewhat Helpful	32	39	22	41	37	23	34
Not Helpful	12	44	8	33	3	2	9
TV Programs on a Regular Channel							
Very Helpful	30	9	14	38	35	38	35
Somewhat Helpful	39	37	28	42	43	45	41
Not Helpful	31	54	58	20	22	17	24
TV Programs on a Cable Channel							
Very Helpful	25	9	11	36	28	26	32
Somewhat Helpful	30	31	26	23	34	30	34
Not Helpful	45	60	63	41	38	44	34
Videocassettes							
Very Helpful	18	5	5	27	18	19	27
Somewhat Helpful	25	25	20	19	28	28	28
Not Helpful	57	70	75	54	54	53	45
Records							
Very Helpful	20	2	5	16	7	44	21
Somewhat Helpful	31	22	22	24	24	45	34
Not Helpful	49	76	73	60	69	11	45
Radio Programs							
Very Helpful	8	*	6	6	3	18	7
Somewhat Helpful	23	17	13	18	23	30	25
Not Helpful	69	82	81	76	74	52	68
Audiocassettes							
Very Helpful	14	2	4	15	7	20	21
Somewhat Helpful	28	16	22	16	23	43	27
Not Helpful	58	82	74	69	70	37	52
Computer Games or Programs							
Very Helpful	22	2	9	15	15	17	51
Somewhat Helpful	25	21	21	15	21	26	37
Not Helpful	53	77	70	70	64	57	12
Number of Sample Cases	1032	107	133	106	204	214	268

[a] Analyses based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

Table 38

Attitudes Toward Learning Resources
By Type and Mix of Technology Used: 12-17 Year Olds

Perceived Helpfulness of Learning Resources	Total[a]	Type of Technology/Resource Used[b] Print Only	Print and Video
Books/Magazines			
Very Helpful	52%	62%	59%
Somewhat Helpful	37	29	39
Not Helpful	11	9	2
TV Programs on a Regular Channel			
Very Helpful	26	24	30
Somewhat Helpful	40	24	40
Not Helpful	34	52	30
TV Programs on a Cable Channel			
Very Helpful	26	18	30
Somewhat Helpful	28	20	29
Not Helpful	46	62	41
Videocassettes			
Very Helpful	20	17	15
Somewhat Helpful	24	17	22
Not Helpful	56	66	63
Records			
Very Helpful	14	6	4
Somewhat Helpful	23	17	19
Not Helpful	63	77	77
Radio Programs			
Very Helpful	12	5	3
Somewhat Helpful	25	18	18
Not Helpful	63	77	79
Audiocassettes			
Very Helpful	15	10	8
Somewhat Helpful	24	19	19
Not Helpful	61	71	73
Computer Games or Programs			
Very Helpful	23	10	12
Somewhat Helpful	24	18	14
Not Helpful	53	72	74
Number of Sample Cases	548	104	109

[a] Analyses based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

Table 39

Attitudes Toward Learning Resources
By Type and Mix of Technology Used: 18 Year Olds and Older

Perceived Helpfulness of Learning Resources	Total[a]	Type of Technology/Resource Used[b]			
		No Print or Technology	Print Only	Print and Video	Print, Audio, and Video
Books/Magazines					
Very Helpful	62%	15%	68%	77%	73%
Somewhat Helpful	28	40	26	21	24
Not Helpful	10	45	6	2	3
TV Programs on a Regular Channel					
Very Helpful	23	6	14	37	39
Somewhat Helpful	33	21	24	47	41
Not Helpful	44	73	62	16	20
TV Programs on a Cable Channel					
Very Helpful	20	8	12	27	33
Somewhat Helpful	25	20	21	33	28
Not Helpful	55	72	67	40	39
Videocassettes					
Very Helpful	15	3	8	22	30
Somewhat Helpful	22	21	20	19	22
Not Helpful	63	76	72	59	48
Records					
Very Helpful	11	3	4	5	27
Somewhat Helpful	20	16	13	16	30
Not Helpful	69	81	83	79	43
Radio Programs					
Very Helpful	12	1	3	5	34
Somewhat Helpful	23	15	13	23	41
Not Helpful	65	84	84	72	25
Audiocassettes					
Very Helpful	14	1	4	6	35
Somewhat Helpful	21	17	14	22	25
Not Helpful	65	82	82	72	40
Computer Games or Programs					
Very Helpful	13	3	6	7	11
Somewhat Helpful	15	13	12	10	18
Not Helpful	72	84	82	83	71
Number of Sample Cases	1180	200	450	251	279

[a] Analyses based on all sample members reporting some learning during the past year.

[b] Categories are mutually exclusive but not exhaustive (i.e., other resource combinations also exist); therefore, sample cases for individual categories will not sum to total.

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